MICRON Pentium PCI

ISA/PCI-Bus System
User's Manual

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Chapter 1

Setting Up Your System

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Unpacking

Check the Packaging

As soon as the packages containing your new system arrive, carefully inspect them for any signs of damage. In particular, look for wrinkled or bent corners, holes, or other signs of bad handling or abuse. If you notice any damage to the packaging, immediately open the boxes, and inspect the contents for damage. Pay close attention to the components near the area where the packing material was damaged.

Unpack Your System

Caution: If your system arrives in cold weather, do not unpack the computer or the monitor until they have been allowed to come to room temperature. Immediately exposing them to the warm room may cause condensation to occur, which may damage the units. If condensation does occur, allow the units to completely dry before operating them.

After you have determined that the packaging is undamaged follow these steps:

1. Unpack and carefully inspect your system.

2. Taking care not to damage the packing material, carefully open the cardboard box containing the computer and remove the system unit, keyboard, and any other accessories that you may have ordered.

3. Carefully unpack the monitor and all accessories from the monitor package. Be careful not to damage the packing material.

4. Inspect all items for damage that may have occurred during shipment. ***For your protection, report any damage to the shipper immediately.***

We highly recommend that you save the packaging in the event that you need to move or ship the system sometime in the future.

Check Your Packing List

Now that you have everything out of the packages, take the time to check the packing list to be sure you received everything. If you discover that an item is missing, call Micron Computer, Inc. immediately to receive a replacement. Refer to Appendix A for contact information.

Setup

Getting Started

Before your new system left the factory, Micron configured the hardware. The display adapter was set to work with your monitor, the hard disk was partitioned and formatted with DOS using the standard default settings for your machine. Your computer system is ready to go. All you have to do is plug it in.

What You Need

- A grounded power outlet
- Phillips-head screwdriver
- Power filter/suppressor protector (recommended)

Putting It All Together

To complete your setup refer to the following steps:

1. Take a moment and review the case figures on pages 1-5 through 1-10 to acquaint yourself with the front and back of your system.

2. Check the voltage selector on the rear of the unit. Be sure it is switched for the proper voltage (115V in the United States and Canada).

3. Place the monitor where your preference dictates, as long as its cable can still reach the video connector at the rear of the computer.

4. Unpack the power cable for the computer and plug the appropriate end into the power inlet at the back of the system. Insert the other end into a grounded power outlet. We highly recommend that you obtain a protection device such as a uninteruptable power supply (UPS), power filter, surge suppressor, etc.) for your power line. In this way you will be providing the utmost protection for your system and data.

5. ***Ensure that the system is turned OFF before proceeding. Attaching peripherals while the power is on may damage the unit or the peripheral.***

6. Locate the monitor's power cable and plug the appropriate end into the monitor (if not already attached). Insert the other end into the grounded outlet or protection device.

7. Find the video cable and attach the appropriate end into the monitor (if not already attached) and attach the other end into the video connector (located in one of the expansion slots at the rear of the unit). If the connection is loose on either end, tighten the integrated screws at both ends of the cable for a secure connection. For more information about the setup, use, and maintenance of your video monitor, please refer to the manual that was supplied with it.

8. Insert the ends of the keyboard and mouse cables into the keyboard and mouse connectors at the rear of the computer system. Take care, for the connectors are keyed in such a way that the plugs can only be inserted if oriented correctly. Refer to the case drawings on pages 1-6, 1-8, and 1-10 for the location of the proper connector. ***If it does not plug in easily, do not force it.***

Your system should now be ready to use. You may have other devices or peripherals to install, but it is best to ensure the basic system is operating correctly before adding any options.

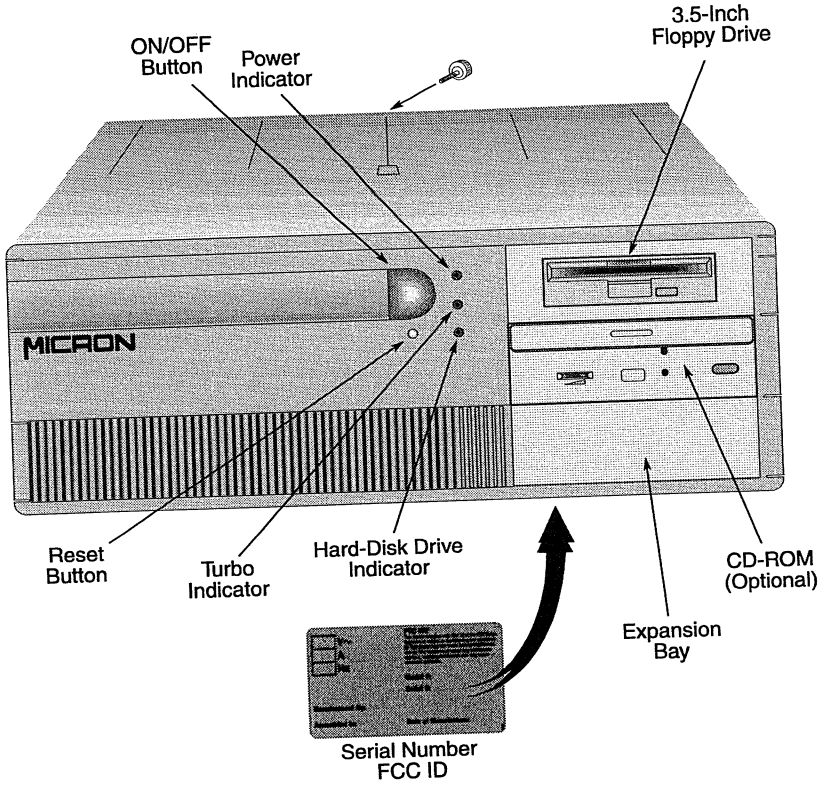

Figure 1-1. Desktop Case-Front

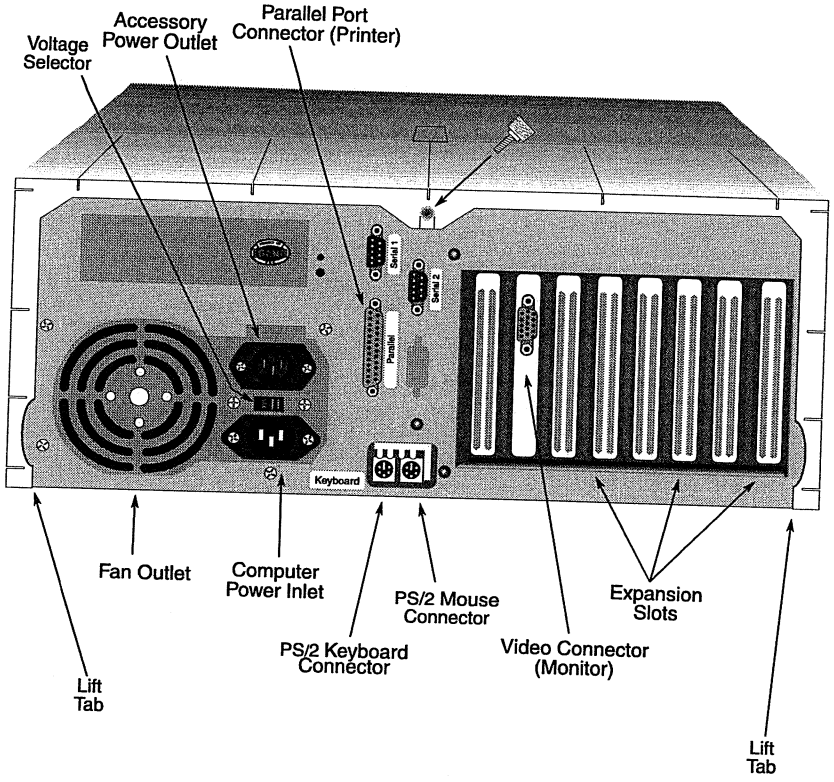

Figure 1-2. Desktop Case–Rear

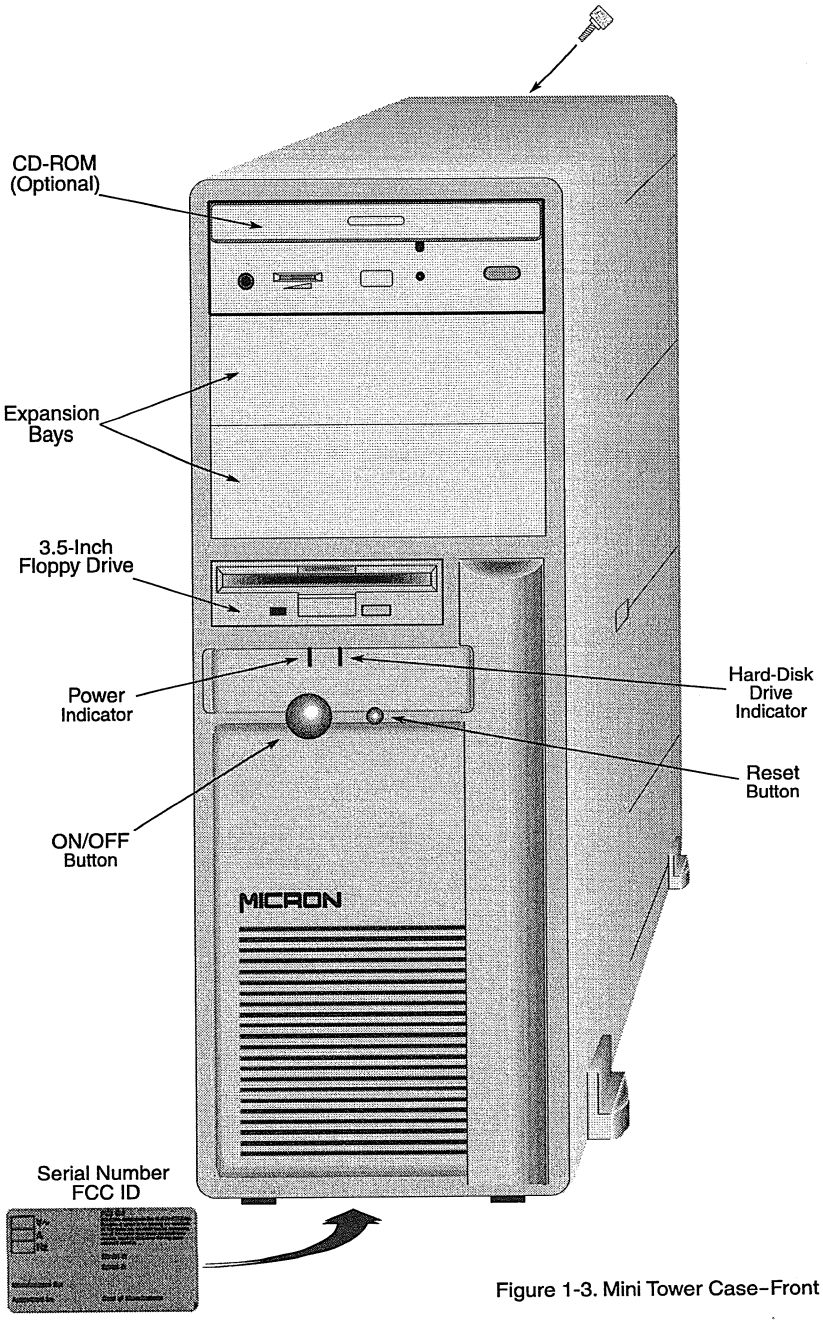

Figure 1-3. Mini Tower Case–Front

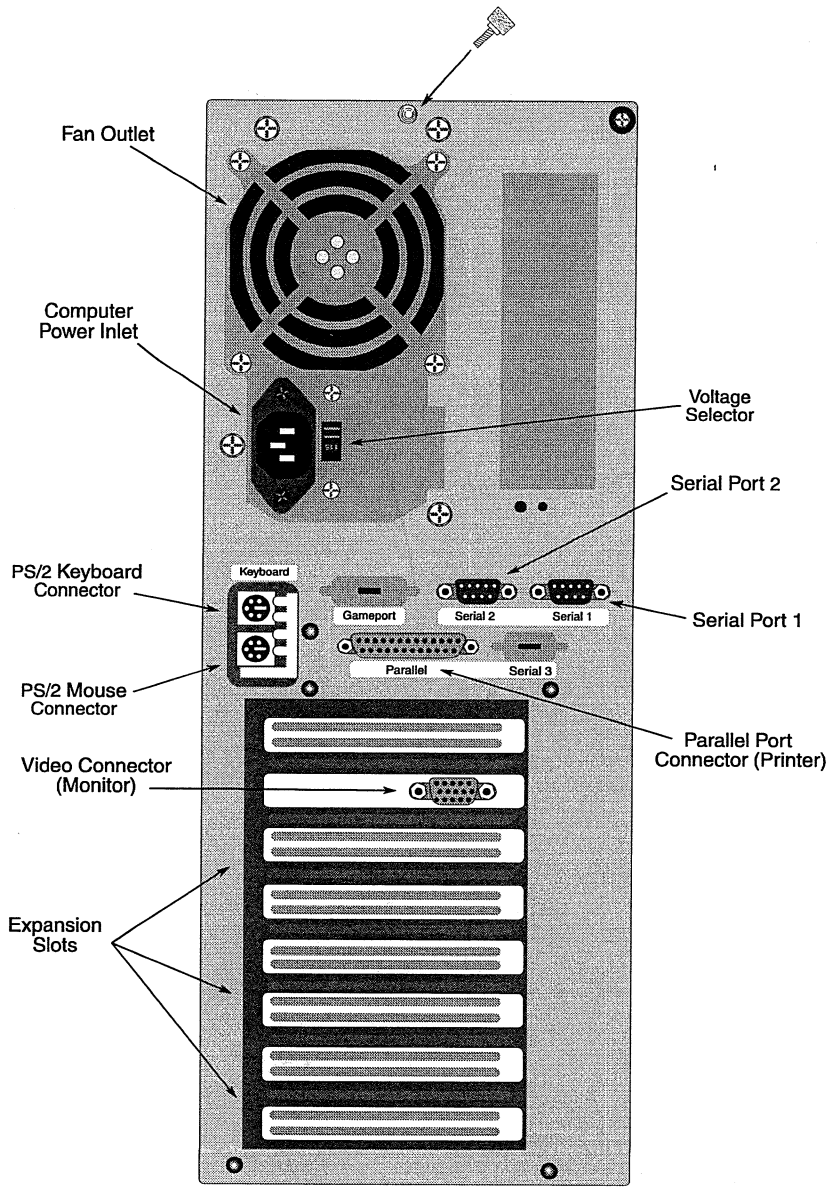

Figure 1-4. Mini Tower Case-Rear

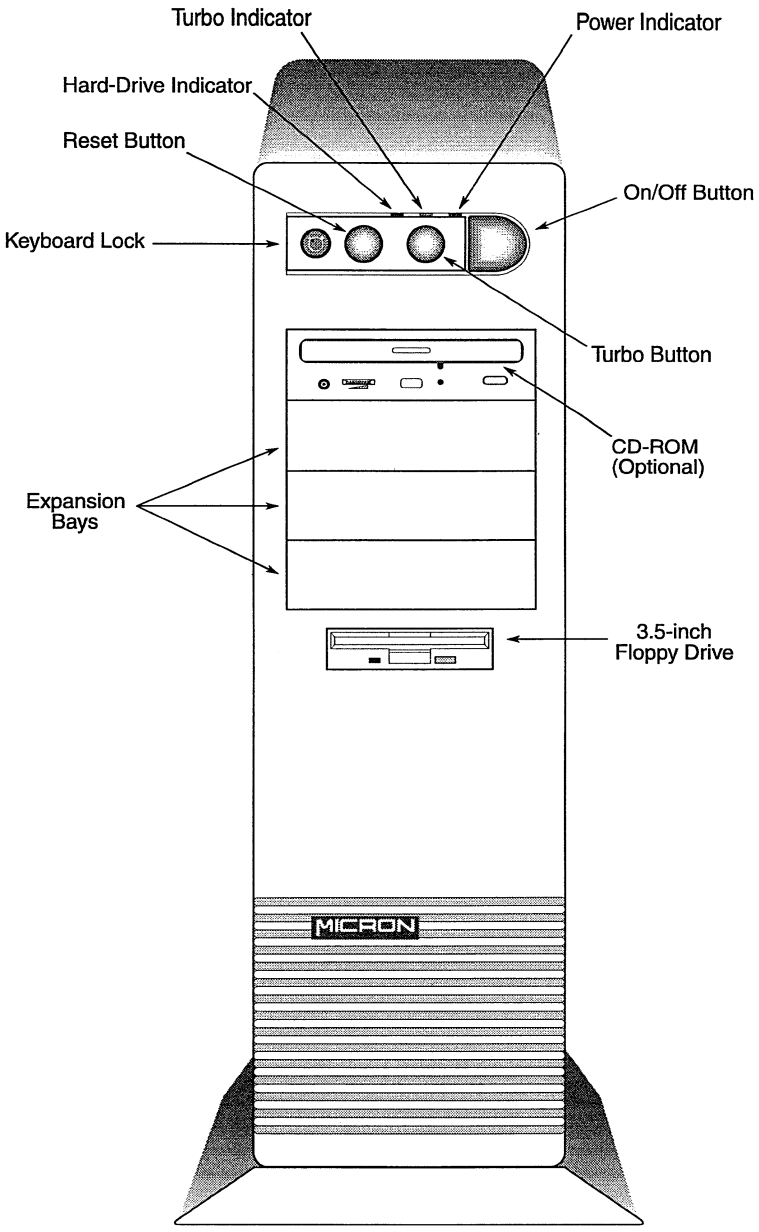

Figure 1-5. Tower Case-Front

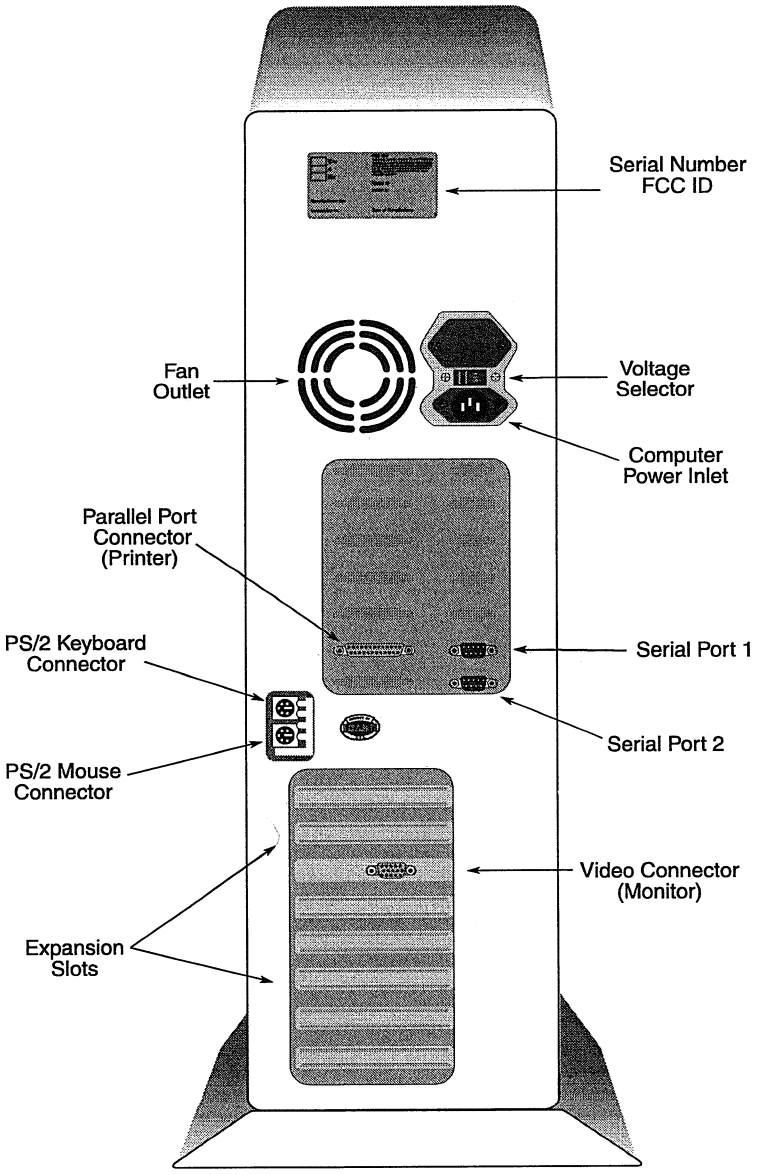

Figure 1-6. Tower Case-Rear

Running Your System for the First Time

1. Power up the monitor. If you are unsure about how to go about this, please refer to the monitor's manual for more information.

2. Remove any floppy disks from the floppy drives.

3. Power up the computer system by firmly pushing the On/Off button on the front panel of the system. The power indicator should light up and the fan and hard drive should begin to run.

The system diagnostics begins at this time. The keyboard is initialized indicated by the keyboard LEDs blinking momentarily. The Num Lock LED remains on. Next, the screen initializes and a message indicating what type of video adapter is installed. The memory will be counted and tested.

After the memory count, the hard disk is momentarily powered down and then powered back up. This is part of the "Green" self test which verifies that the hard disk is able to power down after a period of inactivity. See Chapter 3 for more information and instruction on how to set up the "Green" features.

Finally, the system is booted.

If you experience any problems during the power up sequence, please refer to Chapter 4, "Common Problems."

Turning Off Your System

Micron recommends that you power down your system in the following order:

1. Exit all applications you are running and save any changes.

2. Make sure that ALL disk activity has completely stopped. The floppy and hard drive indicator lights should be off and the floppy drive motors should be stopped. Hard disks continue to spin until the system power is shut off.

3. Turn off the computer system, then the monitor.

Maintenance

Operating Environment

Your Micron computer has been manufactured to the highest standards. With proper care, it should provide years of trouble-free service.

To ensure that your system has the longest life possible, it should be placed in an area with good ventilation and low humidity, out of direct sunlight and away from heat sources or lamps. Be sure the rear cooling-fan opening is not obstructed as it is necessary to keep the system cool. Never expose the system to moisture of any sort, for this could lead to fire or shock hazard. Stay away from areas with high levels of dust, dirt, or smoke.

Transporting

Always shut the system off before moving it. Any sudden jar or shock may permanently damage the hard drive. Hard drives are more resistant to shock if they are shut down.

If you are transporting the system over a distance, it is a good idea to completely repackage it in its original packing material. If the original packaging is unavailable, pack all components with as much padding as reasonably possible to ensure that the units are not exposed to excessive vibration or shock.

Cleaning

If the system unit becomes dirty through constant use or handling, use only a damp, dust-free cloth. Do not use abrasives or solvents as these may mar or scratch the case. Window cleaner and a cloth can be used to clean the monitor, if the monitor has been turned OFF first. Never apply the window cleaner directly to the monitor screen. Always spray the cloth first, then wipe down the screen.

Cleaning kits designed to clean floppy drives are available from most computer stores and should be used periodically.

If you are operating your system in an environment heavy with smoke or dust, you should occasionally open the unit and *with great care* clean the components with a vacuum (special vacuums are available just for this purpose). Be careful to not loosen any of the components.

If liquid is spilled into the keyboard, immediately unplug it, allow the fluid to drain out by tipping the keyboard upside down, and dry the keyboard overnight before using it again.

Protecting

Problems with the power supply are notorious for causing system failures. To prevent normal electrical problems such as spikes or surges, install a power surge/filter between the power outlet and *all* of the connected components. If even one component is not connected, the entire system could be at risk.

If a severe storm enters your area, completely unplug the entire system from all electrical sources, including phone lines. Lightning can travel in on any line and destroy all connected components.

If possible, do not turn the system on and off frequently. This stresses the power supply and may shorten the life of some components. To restart the system, press the reset button located in the front of the case. If applications are open and the system is reset or if the hard drive is active data loss will most certainly occur. If you do not use the reset button to restart the system, be sure the hard drive has come to a complete stop before turning the computer on again.

Backing Up

Even with today's technology, data loss can occur at any time. We cannot stress enough that you should back up often. There is a large number of backup systems available from retail and mail-order outlets, including floppy drive backup systems, tape backup systems, and optical backup systems. Any of these alternatives are highly recommended. Complete, frequent backups can save years of data from total and irretrievable destruction. If you require additional information about backup systems or options, please contact Micron Computer, Inc.

Chapter 2

Technical Information

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- Memory 2
- PCI Pentium Features 3
- PCI Chip Set 4
- System I/O Chip 6
- The Pentium PCI System Board 7
- Configuration 8

System Board Options 13
- Installing PCI Local Bus Card 13

Memory Configuration 15
- Installing SIMM Modules 15
- Removing SIMM Modules 18
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Overview

Micron's high-performance Pentium PCI system board is the basis for your personal computer or workstation. The system board is based on the PCI local bus and the PCI chip set.

PCI stands for Peripheral Component Interconnect and is the newest in Local Bus technology. Features and benefits of the PCI bus include:

- Higher performance than current VESA Local Bus designs
- Ability to auto configure (no jumpers or switches are required)
- Superior compatibility

The PCI bus delivers better performance than exsisting VL bus systems due to Intel's PCI chip set. This combination of logic allows the CPU to transfer data to a device via the PCI controller's buffer. This process allows the CPU to move on to other tasks rather than waiting for the transfer to complete.

Systems running multi-tasking software, such as OS/2, Windows NT, or Unix will benefit in better performance due to the software's ability to work concurrently with the CPU. This will allow the PCI bus and CPU to operate at the same time, something VL-bus systems cannot do.

Memory

Micron's Pentium PCI system board has four banks of DRAM, which provide 128MB maximum memory using on-board SIMMs. The SIMMs include 1MB x 32/36 (1MB) through 8MB x 32/36 (32MB).

The system board also has 16KB of write-back cache inside the Pentium. A 256KB secondary level cache is available.

Pentium PCI Features

The following features are implemented in the standardized PCI architecture:

- Baby AT footprint form factor (13.25 inches X 8.5 inches)
- Intel 60MHz or 66MHz Pentium process option
- 256K standard on-board cache
- Five ISA slots, two PCI Local Bus slots, and one ISA/PCI slot
- On-board Super I/O controller (SMC 665)
- Intel's 82430 PCI set
- On-board peripherals including two serial ports, one parallel port, one floppy connector, and one IDE Interface
- Phoenix Flash EPROM BIOS

PCI Chip Set

Micron's Pentium PCI system implements Intel's PCI (Peripheral Component Interconnect) chip set. The chip set allows for better integration and higher performance for the CPU.

The Intel PCI chip set consists of four chips located on the board:

82434LX PCI/Cache/Memory Controller (PCMC).

Two, 82433LX Local Bus Accelerators (LBX).

82378IB System I/O (SIO).

Each component performs separate tasks, but they work together. The components work as memory, provide secondary level cache control, and operate as a bridge between the Host bus and the PCI bus. Refer to Figure 2-1 on page 2-5 for a simplified diagram of the PCI chip set.

PCMC CHIP

The 82434LX PCMC functions include a cache controller, main memory DRAM controller, and a Host/PCI bridge. The chip's cache controller supports both write-through and write-back cache. The PCMC is also ideal for the 64-Bit Pentium processor at 60MHz or 66MHz.

The PCMC has a dual-ported architecture which permits concurrent operations on the PCI bus and the host bus. The dual-port main memory DRAM controller interfaces the DRAM with the host bus and the PCI bus.

The PCMC works in tandem with the LBX chips. Together, they work as a full-function, dual-port data path that connects the main memory and forms a PCI bridge to the host subsystem. The component also controls data flow through the LBX.

LBX CHIPS

There are two, 82433LX LBX located on the M5Pi system board. Each chip provides a 32-bit data path connection between the host CPU and the PCI bus, plus a 32-bit data path between the PCI Bus and the main memory. The components also integrate three, write-posting buffers and two, read prefetch buffers. These buffers act as a temporary holding place for data which frees up the processor, thus increasing PCI Master and Pentium processor performance.

The LBX also has a dual-ported architecture, which permits concurrent operations between the host bus and the PCI bus. The components provide the address paths and bus controls during bus operations among the host bus, main memory and PCI bus.

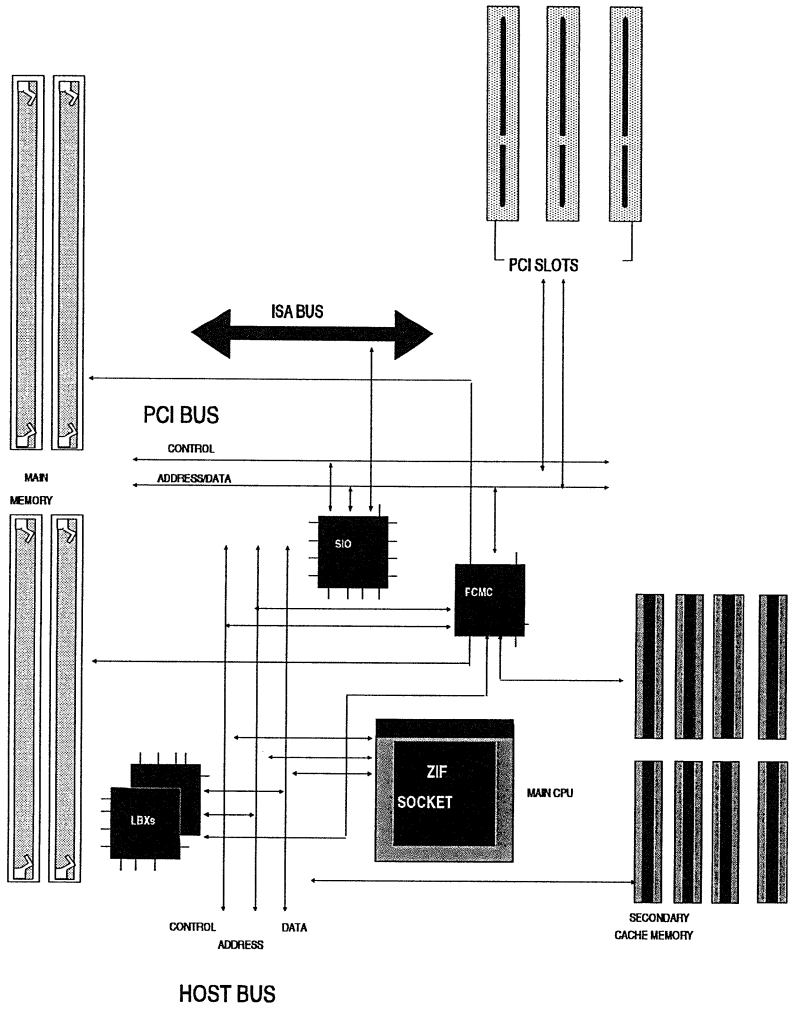


Figure 2-1. PCI Chip Set Diagram

System I/O Chip

The 82378IB System I/O (SIO) chip acts as a bridge between the PCI bus and the ISA bus. This multi-faceted component incorporates several functions, including:

Logic for a PCI interface (master and slave).

ISA interface (master and slave).

Enhanced seven-channel DMA(Direct Memory Access) controller.

Data buffers to isolate the PCI bus from the ISA bus.

PCI and ISA arbitration.

14-level interrupt controller.

Three programmable timer/counters.

Integrated BIOS timer.

Non-maskable-interrupt (NMI) control logic.

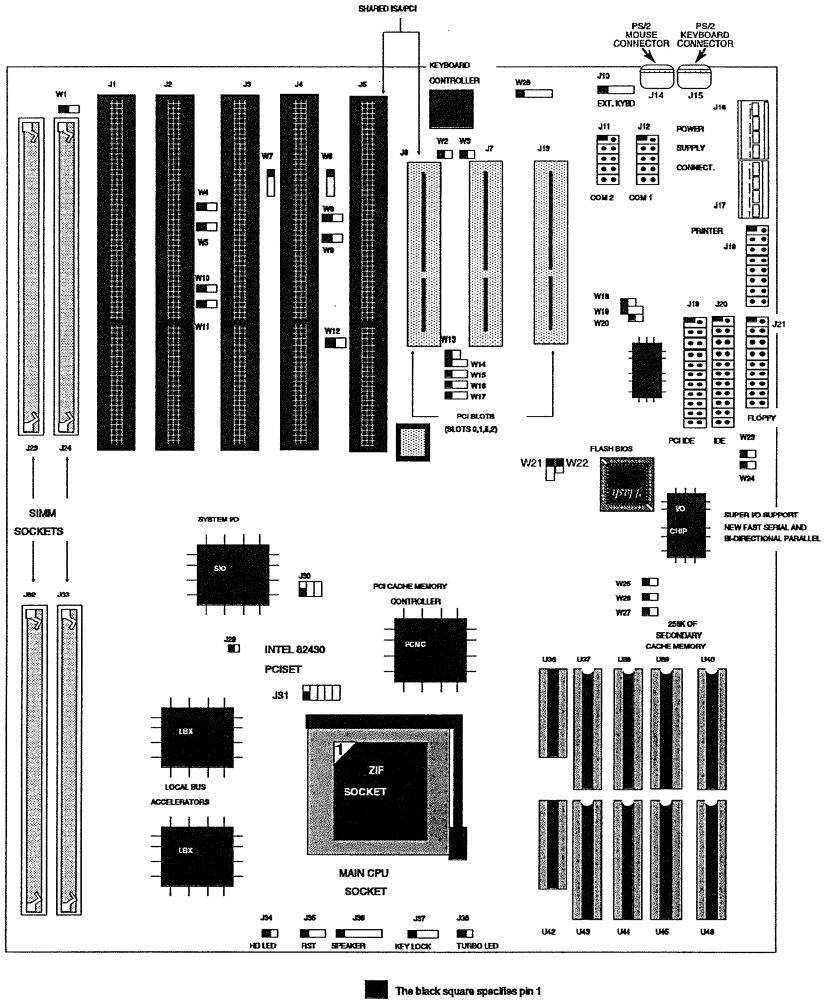


Figure 2-2. Pentium PCI system board

Configuration

There are jumpers on the Pentium PCI system board that have to be set before configuring the system board. Setting the jumpers configures various functions on the system board.

Jumpers relay information to the computer to perform specific functions. Refer to the following tables to set the jumpers.

Jumper	Configuration	Setting
W6	DMA Channel 1 DMA Channel 3 DMA not used	Pins 1-2 Pins 2-3 Not installed
W7	DMA Channel 1 DMA Channel 3 DMA not used	Pins 1-2 Pins 2-3 Not installed

Table 2-1. Parallel Port Selection

Jumper	Configuration	Setting
W16	DMA Channel 6 DMA Channel 7 DMA not used	Pins 1-2 Pins 2-3 Not installed
W17	DMA Channel 6 DMA Channel 7 DMA not used	Pins 1-2 Pins 2-3 Not installed

Table 2-2. IDE Port Selection

Configuration	W5	W10	W11
IRQ 5 used by PCI	Installed	Not Installed	Not Installed
IRQ 11 used by PCI	Not Installed	Installed	Not Installed
IRQ 15 used by PCI	Not Installed	Not Installed	Installed

Table 2-3. On-Board I/O Connectors

Jumper	Configuration
J6	PCI#0 (Slave, Shared with ISA slot J5)
J7	PCI#1 (Master/Slave)
J13	PCI#2 (Master/Slave)

Table 2-4. PCI Slots

Jumper	Configuration	Setting
W28	Normal PCI slave in slot J6 IRQ 14 Non-Inverted PCI IDE card in slot J6 IRQ 14 Inverted PCI IDE card in slot J6	Pins 1-2 Pins 2-3 Pins 3-4

Table 2-5. PCI IDE Selection

Jumper	Configuration	Setting
W19	Printer port uses IRQ7 Printer port uses IRQ5	Pins 1-2 Pins 2-3
W12	PS/2 mouse uses IRQ12	Installed
W14	IDE uses IRQ14 IDE uses IRQ15	Pins 1-2 Pins 2-3
W15	PCI IDE uses IRQ14 PCI IDE uses IRQ15	Pins 1-2 Pins 2-3

Table 2-6. IRQ Selections

Jumper	Configuration	Setting
W20	Disable On-Board PCI IDE Enable On-Board PCI IDE	Installed Not installed

Table 2-7. On-Board PCI IDE Selection

Jumper	Configuration	Setting
W3	Color Monochrome	Installed Not installed

Table 2-8. Video Configuration

Jumper	Configuration	Setting
W24	Clear CMOS RAM Normal	Installed Not installed

Table 2-9. CMOS RAM Select

Jumper	Configuration	Setting
W22	Flash ROM Programming Enabled Flash ROM Programming Disabled	Installed Not installed
W21	Normal Operation Flash ROM Recovery	Pins 2-3 Pins 1-2

Table 2-10. Flash ROM Selection

Configuration	W25	W26	W27
60MHz	Installed	Not Installed	Installed
66MHz	Not Installed	Installed	Not Installed

Table 2-11. CPU Clock Speed

Jumper	Configuration	Function\Pin Outs
J11	COM Port 2	COM2
J12	COM Port 1	COM1
J14	PS/2 Mouse Connector	
J15	PS/2 Keyboard Connector	
J16 & J17	Power Supply Connector	
J18	Parallel Port	
J19	PCI IDE Connector (may not be present)	
J20	ISA IDE Connector	
J21	Floppy Connector	
J34	On-Board IDE LED	
J35	Reset Switch	1-Signal; 2-Ground
J36	Speaker Connector	1-Power LED; 2-N/C; 3-Ground; 4-5V DC
J37	Power LED/Keylock	1-Power LED; 2-N/C; 3-Ground; 4-KeyBd Lock; & 5-Ground

Table 2-12. Peripheral and Case Connections

System Board Options

There are options available for the system board to improve and enhance performance. These options include PCI Local Bus card(s) and SIMMs.

Before adding (or removing) any peripherals, make sure you have a clear work space to work on and that you adhere to all anti-static precautions. If problems arise when installing the peripherals, contact Micron's Technical Support (see Appendix A).

Installing PCI Local Bus Card

Micron's PCI Local Bus slot accommodates all PCI- approved Local Bus cards. Refer to Figure 2-3 and follow the steps below when installing a PCI card.

1. Turn OFF any devices (printer, display, modem, so forth) attached to the computer.
2. Turn OFF the computer system.
3. Remove the computer's cover.
4. Locate an unused PCI slot on the system board.
5. Insert the card with the bottom edge level to the system board. (Never insert the card at an angle!).
6. Holding the card at the center of the top edge, gently push straight in. Do not force the card into place (If it does not fit, take it out and try again).
7. Make sure the card is fully inserted.
8. Screw the card into place.
9. Replace the computer's case.

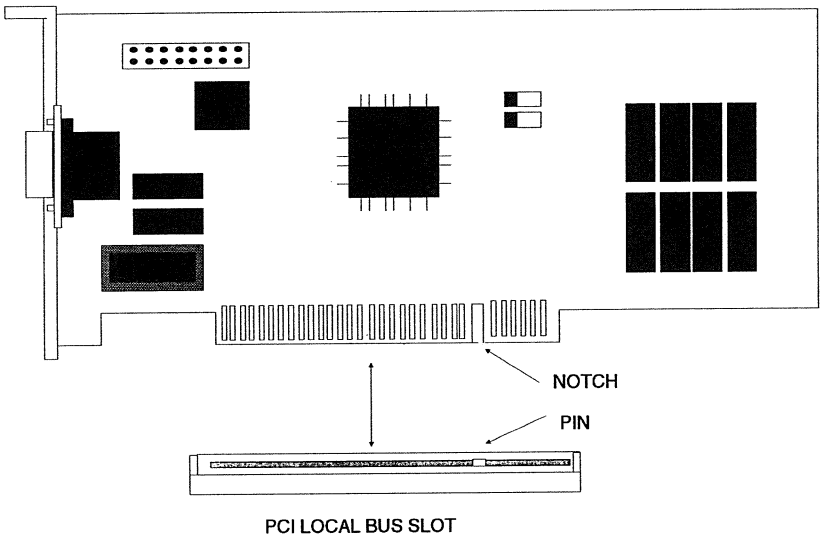


Figure 2-3. Installing a PCI Card

NOTE: When a PCI card is installed into slot J6, the ISA slot next to it (J5) cannot be used.

Memory Configuration

Installing SIMM Modules

CAUTION: Modules are Electrostatic Sensitive.

Even a small electrostatic discharge could damage a SIMM. A damaged module might not fail immediately, but over time it will become worse, possibly causing an "intermittent" problem. Be very careful to handle the boards ONLY by the edges. DO NOT touch the gold/silver edge-connectors or any of the components on the board. Leave the module in the antistatic bag until ready for installation.

1. Switch the computer off. Leave the computer plugged in to the outlet to provide an electrical ground to discharge static electricity.

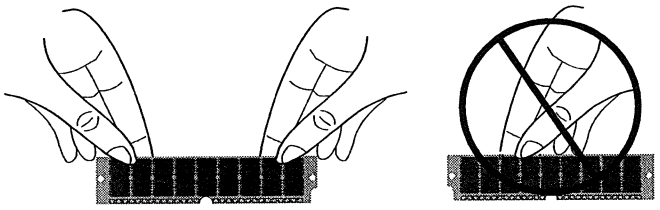
2. With your finger, touch the metal case of the power supply or the metal lining inside the computer case. This proceedure will drain the static charge from your body and keeps the modules from being electrically damaged.

3. Keep body movement to a minimum as you remove and handle the modules.

Antistatic wrist straps with clip-on ends are commercially available.

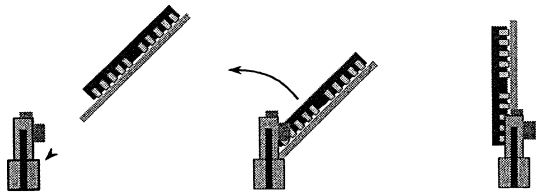
With the SIMMs (Single In-line Memory Modules) installed, memory in the Micron 486VL can be increased up to 64MB. To install SIMMs, first locate the memory banks on the system board (refer to Figure 2-1). There are four SIMM sockets in these memory banks, install the SIMMs there. Start with bank 0, then work your way up.

Step 1: Using both hands, carefully set the SIMM into the socket at an **45 degree angle,** tilted towards the ISA slots (refer to Figure 2-1 and Figure 2-3). Do not force it in or damage may result. Note that the SIMM modules are keyed in such a way that they cannot be inserted incorrectly(refer to Figure 2-4). If you are having difficulty placing them into the socket, check to see that you are not attempting to insert them backwards.
Do not lock the module into position at this time.



Correct Incorrect

Figure 2-3.



Proper SIMM Insertion

Figure 2-4.

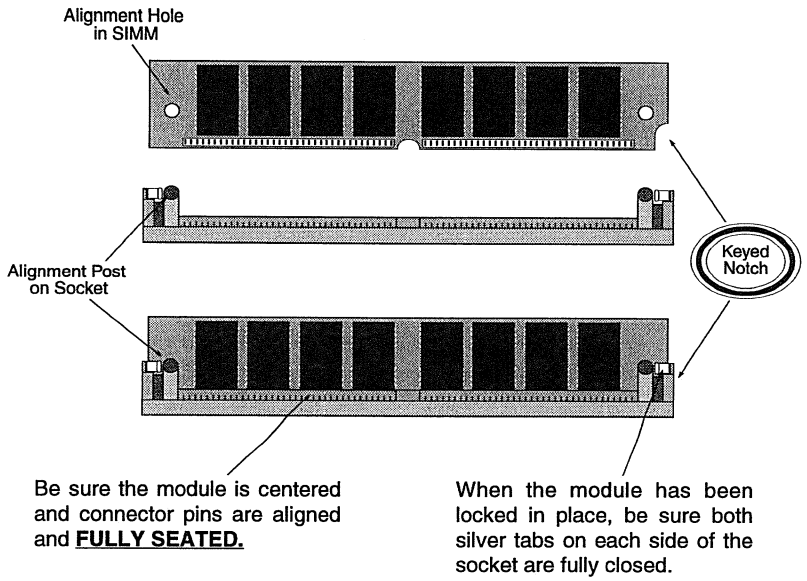

Alignment Hole in SIMM
Keyed Notch
Alignment Post on Socket
Be sure the module is centered and connector pins are aligned and FULLY SEATED.
When the module has been locked in place, be sure both silver tabs on each side of the socket are fully closed.

Figure 2-5. SIMMS with Keyed Notch and Alignment Posts

Step 2: Make sure that the module is centered in the socket, and that the connector pins of the module line up with the socket connector pins.

A) Be sure the module is centered and connector pins are aligned.

B) When the module has been locked in place, be sure both tabs (at the rear of the module) locked properly.

Step 3: Using both hands and applying equal pressure on each end of the module, lock the module into the socket by pushing forward. Make sure both locking tabs are seated properly. Be sure the alignment post on the socket is aligned with the hole on the SIMM. Make sure both silver tabs on the socket are fully closed. The module should now be standing upright in the socket.

CAUTION: Failure to observe proper insertion guidelines may result in damage to the SIMM and/or the socket.

Removing SIMM Modules

Removing the SIMM modules is simply the reverse of the installation procedure with the following differences: Using the thumbs of both hands, gently pry the locking tabs apart so that they no longer hold the module in the socket. While holding the tabs apart, gently pull the module backward to clear the tabs (this should put the module at an angle to the socket). Carefully remove the loose module from the socket.

Memory Options

Table 2-13 lists possible memory size configurations. The BIOS automatically detects the amount of memory installed.

Memory Size	Bank 0	Bank 1	Bank 2	Bank 3
8MB	4M	4M		
16MB	4M	4M	4M	4M
16MB	8M	8M		
24MB	4M	4M	8M	8M
24MB	8M	8M	4M	4M
32MB	8M	8M	8M	8M
32MB	16M	16M		
40MB	4M	4M	16M	16M
40MB	16M	16M	4M	4M
48MB	8M	8M	16M	16M
48MB	16M	16M	8M	8M
64MB	16M	16M	16M	16M
64MB	32M	32M		
72M	4M	4M	32M	32M
72M	32M	32M	4M	4M
80M	8M	8M	32M	32M
80M	32M	32M	8M	8M
96M	16M	16M	32M	32M
96M	32M	32M	16M	16M
128M	32M	32M	32M	32M

Table 2-13. Memory Configuration

Chapter 3

The BIOS Setup Program

SETUP 2
BIOS Setup 2
When Setup Should be Run 2
How to Run the Setup Program 3
Setting the CMOS Main Screen 5
Setting the CMOS Extended Screen 6
Exiting/Saving the CMOS Selections 8

SETUP

BIOS Setup

Every AT-compatible computer has a battery supported CMOS memory location that stores information about the system and peripheral configuration. Because of the attached battery, the CMOS is constantly provided with power, even when the computer has been turned off.

During the boot sequence, a special software application called the BIOS (Basic Input Output System), which is located in read-only memory (ROM) on the system board, reads the information in the CMOS and configures the CPU and other peripherial devices. If the CMOS information is incorrect, the system may not operate correctly until accurate information is restored. The Setup Program has been built into the system to provide the means for changing the CMOS.

When Setup Should be Run

Although the Micron Pentium PCI arrives fully configured, you may need to adjust the system to fit your needs.

Whenever peripherals are added or removed from the system (for example, if you add a hard disk or more memory), you must run Setup to inform the system about the new configuration.

If the CMOS loses the information contained within it, the system may not operate properly unless you run Setup to restore the system configuration.

How to Run the Setup Program

If at any time you want to run the Setup Program after your system has been configured, simply press the <CTRL>, <ALT>, and <S> keys at the same time. The screen shown in Figure 3-1 appears.

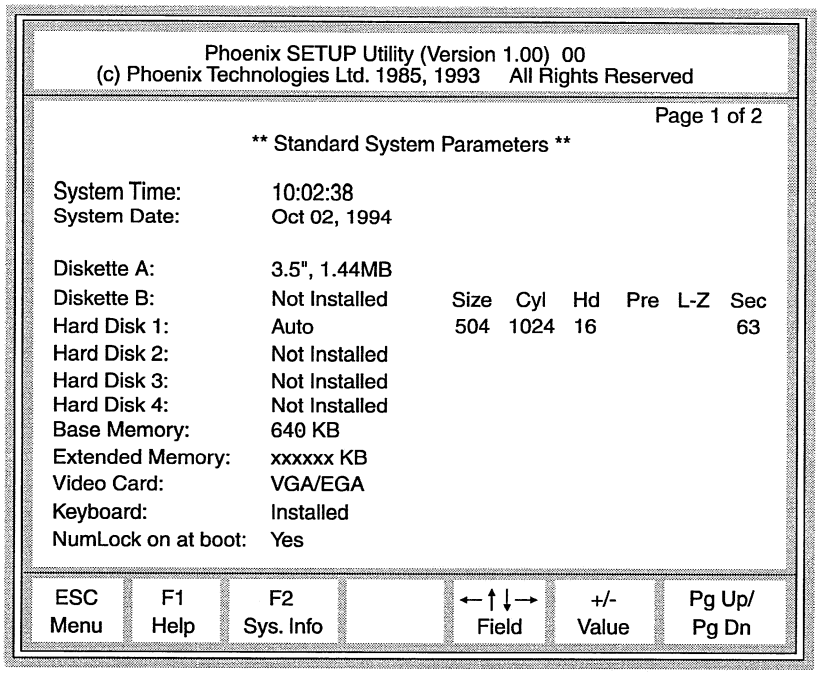

Phoenix SETUP Utility (Version 1.00) 00
(c) Phoenix Technologies Ltd. 1985, 1993 All Rights Reserved
Page 1 of 2
** Standard System Parameters **
System Time: 10:02:38
System Date: Oct 02, 1994
Diskette A: 3.5", 1.44MB
Diskette B: Not Installed
Hard Disk 1: Auto
Hard Disk 2: Not Installed
Hard Disk 3: Not Installed
Hard Disk 4: Not Installed
Base Memory: 640 KB
Extended Memory: xxxxxx KB
Video Card: VGA/EGA
Keyboard: Installed
NumLock on at boot: Yes
Size Cyl Hd Pre L-Z Sec
504 1024 16 63
ESC Menu
F1 Help
F2 Sys. Info
←↑↓→ Field
+/- Value
Pg Up/ Pg Dn

Figure 3-1. Setup Program Main Screen.

The Pentium PCI system board has two CMOS configuration screens: the setup program main screen (Figure 3-1) and the setup program extended screen (Figure 3-2).

To toggle between the screens, press the PgUp/PgDn keys.

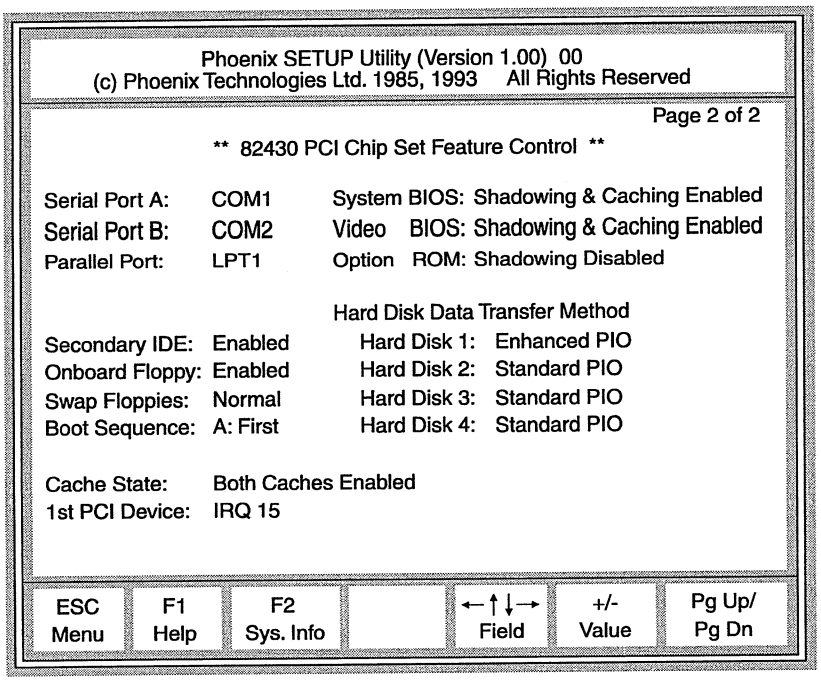

Phoenix SETUP Utility (Version 1.00) 00
(c) Phoenix Technologies Ltd. 1985, 1993 All Rights Reserved
Page 2 of 2
** 82430 PCI Chip Set Feature Control **
Serial Port A: COM1
Serial Port B: COM2
Parallel Port: LPT1
System BIOS: Shadowing & Caching Enabled
Video BIOS: Shadowing & Caching Enabled
Option ROM: Shadowing Disabled
Hard Disk Data Transfer Method
Secondary IDE: Enabled
Onboard Floppy: Enabled
Swap Floppies: Normal
Boot Sequence: A: First
Hard Disk 1: Enhanced PIO
Hard Disk 2: Standard PIO
Hard Disk 3: Standard PIO
Hard Disk 4: Standard PIO
Cache State: Both Caches Enabled
1st PCI Device: IRQ 15
ESC Menu
F1 Help
F2 Sys. Info
←↑↓→ Field
+/- Value
Pg Up/ Pg Dn

Figure 3-2. Setup Program Extended Screen.

Before running the computer, there are certain categorys on the CMOS configuration screens that have to be set so that the computer can operate properly. To return to the CMOS configuration screens at any time to change or view any of these categorys, press <CTRL>, <ALT>, and <S> simultaneously.

First, set the categorys on the CMOS main screen, then press the PgUp/PgDn key to set the categorys on the other screens.

Now, configure the computer's categorys to match your specific requirements. See the following pages for the procedures on how to set the computer's categorys.

NOTE: Some of the categorys are already set and do not need to be changed. Only change the settings if necessary.

Setting the CMOS Main Screen

SYSTEM TIME AND DATE

To set the time, use the <-> key to decrease the number; use the <+> key to increase the number. To move the prompt forward, use the right arrow key; to move the prompt backward, use the left arrow key.

Follow the same procedure for the date.

DISKETTE A OR DISKETTE B

This allows you to configure a diskette drive added or removed from your computer. Use the <+> or <-> keys to toggle between the categorys.

HARD DISK 1, 2, 3, and 4

This category allows you to configure those hard disks installed in your system. Use the <+> or <-> keys to toggle between the categorys.

To install most SCSI hard drives, select NOT INSTALLED. To install an ESDI or RLL hard drive, select TYPE 1. To manually configure the hard drive, select USER CONFIG. Press the right directional key and type in the appropriate categorys. To automatically configure an IDE hard drive, select AUTO. Drives that have the capability to be Auto-Configured will report the hard drive categorys to the BIOS.

For a complete listing of all the possible hard drive types, see Appendix C.

BASE MEMORY AND EXTENDED MEMORY

Both of these memory settings are automatically configured. Use the down arrow key to move to the next selection.

VIDEO CARD

This category sets the type of monitor required for your computer. The Display peripheral will support VGA/EGA, Monochrome (MONO), or no monitor at all. Use the <+> or <-> keys to toggle between the categorys.

KEYBOARD

The Keyboard category is set to INSTALLED for keyboard error reporting. To turn off keyboard error reporting, use the left/right arrow keys to toggle the keyboard to NOT INSTALLED.

NUMLOCK ON AT BOOT

This sets the NUMLOCK on the keyboard to the ON position after the computer is booted up. NUMLOCK keeps the number keys as numbers. You can then disable the NUMLOCK by pressing the Num Lock key.

Setting the CMOS Extended Screen

Now press the <PgDn> key to set the categorys on the Extended Screen(refer to Figure 3-2). You can toggle between screens using the <PgUp> or <PgDn> keys.

SERIAL PORT A

The Serial Port A can be selected as COM1 or COM3. Be sure that this setting does not conflict with any add-on peripherals. The Serial Port A can also be set to DISABLED if the on-board port is not used.

SERIAL PORT B

The Serial Port B can be selected as COM2 or COM4. Be sure that this setting does not conflict with any add-on peripherals. The Serial Port B can also be set to DISABLED if the on-board port is not used.

PARALLEL PORT

The Parallel Port selection can be selected as LPT1 or LPT2. Be sure that this setting does not conflict with any add-on peripherals. The Parallel Port can also be set to DISABLED, if the on-board port is not used.

SECONDARY IDE

This selection allows you to disable or enable the on-board Secondary IDE. Use the <+> or <-> keys to toggle between the categorys.

ON-BOARD FLOPPY

This selection allows you to disable or enable the on-board floppy controller. Use the <+> or <-> keys to toggle between the categorys.

SWAP FLOPPIES

This selection allows you to change Floppy A to Floppy B and vice-versa by setting the category to SWAPPED. This allows you to boot from the B drive if necessary.

BOOT SEQUENCE

This selection allows you to select the device to boot from. If you select A:FIRST, the Micron Pentium PCI will boot and check the "A" drive for a boot device first.

CACHE STATE

This selection allows you to enable the internal cache only, or both the internal and external cache. For optimum performance, select BOTH CACHE ENABLED.

1ST PCI DEVICE

This category rotationally selects the IRQs (15, 9, or 11)in this order for the PCI slots. IF IRQ 15 is selected it will assign that IRQ to J13 (Slot 2). In this case IRQ 9 will be assigned to J7 (Slot 1) and so on. Use the <+> or <-> keys to toggle between the categorys.

SYSTEM BIOS

To access the System BIOS category arrow right from the Serial Port A: category.

The System BIOS allows you to ENABLE or DISABLE the BIOS on the system board. Choosing ENABLE copies the system BIOS into RAM for faster execution. This allows you to take advantage of the high-speed 32-bit bus and the 70 nanosecond RAM. Use the <+> or <-> keys to toggle between the categories.

VIDEO BIOS

Choosing ENABLED copies the system's Video BIOS into RAM for faster execution. Some video cards cannot be shadowed, so this selection must be set to DISABLED. Use the <+> or <-> keys to toggle between the categorys.

CATEGORY ROM

This selection can be used to shadow ROM on the peripheral cards. Most peripheral boards will not category properly when their ROMs are shadowed, so Micron recommends the Category ROM be selected to DISABLED.

HARD DISK DATA TRANSFER METHOD

There are two selections for this category, STANDARD PIO and ENHANCED PIO . These selections allow you to choose the type of hard disk transfer methods for both drives:

- STANDARD PIO is the setting for regular IDE drives. These drives should not support Enhanced PIO mode.
- ENHANCED PIO is for higher performance drives that support Mode 3 (180ns cycle time).

NOTE: If you have a PCI IDE controller card or a PCI SCSI card installed in your machine these settings will have no effect on the performance of the system. Please refer to the documentation supplied by the controller card manufactuer on hard drive configuration.

Exiting and Saving the CMOS Selections

Press the <ESC> key from any setup screen to reach the exit pop-up menu. Select F4 to save and initialize the new Setup.

Chapter 4

Common Problems

Introduction **2**
Problems During Boot 2
Hard Disk Problems 3
System Problems 5

Introduction

Occasionally while setting up and configuring a computer system, an error occurs or an important element is forgotten. This chapter gives information regarding the most frequently encountered problems as well as many quick and simple solutions. For additional troubleshooting information refer to Appendix B "Post and Boot Messages." If you continue to experience problems and this section fails to alleviate the problem, please feel free to contact Micron technical support (see "Appendix A: Contacting Technical Support").

Problems During Boot

Problem

When the power switch is turned on, the system does not power up (the exhaust fan does not run, the power indicator light is not illuminated, the hard disk does not begin to spin, and so on).

Possible Cause

- The power cable is unplugged or is bad.
- The voltage switch is improperly set.
- There is no power at the power outlet.
- The power supply is defective.

Solution

- Check to ensure that the power cable is plugged in correctly and firmly. Try a second power cable, if one is available, or test the cable for continuity. Replace the original cable if it is found to be defective.
- Check the red voltage switch (located at the rear of the unit near the fan) and ensure that it is set for the proper voltage (115V in the U.S. and Canada).
- Check the outlet with another appliance such as a lamp.

Problem

When the power switch is turned on, the system has power (the exhaust fan runs, the power indicator light is illuminated, the hard disk begins to spin, etc.), but the system appears dead. Generally the keyboard lights will stay on.

Possible Cause

- The monitor may not be turned on.
- A peripheral card may not be seated correctly on the system board.
- A peripheral card may be defective.
- A floppy drive may be defective.

Solution

- Check the monitor to ensure that the power is on. If a problem is suspected with the monitor, refer to the manual that was provided with it.
- Turn the computer off. Carefully open the system unit. Press down firmly on all cards in the expansion slots.
- With the system power shut off, remove one peripheral card, power up the system, and wait a few moments to see if the keyboard lights turn off. If they don't, repeat the above steps with the next peripheral card. If the system works properly after you remove a card, then replace that card. If it still doesn't work after you remove all cards, then it's probably a system board problem. After this has been completed, contact Micron Technical Support for further assistance.
- With the system power shut off, completely disconnect one of the floppy drives and power up the system. If the keyboard lights do not turn off after a few moments, repeat the above procedure until all drives are disconnected. After this has been completed, contact Micron Technical Support for further assistance.

Hard Disk Problems

Problem

System has to be booted from a floppy disk. Hard drive is either unrecognized or unreadable.

Possible Cause

- The connections between the drive and the controller may be bad or loose.
- The hard drive's root directory or file allocation table may be corrupted.
- The controller or hard drive may be defective.

Solution

- Check that the hard drive and controller are connected properly.
- If hard drive recovery software is available, attempt to repair the damage with it. Otherwise you can attempt to high-level (DOS) format on the drive. *Reminder: All data will be lost from formatting.* Contact Micron technical support if you are in doubt about the procedure. ***Do not attempt to low-level format the drive!*** If the drive cannot be formatted, either it or the controller may be defective.

Problem

System has to be booted from a floppy disk. Hard disk is completely functional, but cannot be booted from by the system.

Possible Cause

- The hard drive's boot sector may have become corrupted.

Solution

- If hard drive recovery software is available, attempt to repair the damaged boot sector with it. Otherwise you can attempt to high-level (DOS) format the drive and transfer the DOS system to the boot sector. ***Do not attempt to low-level format the drive!*** Do a complete file-by-file backup of your data before formatting your drive.

Problem

The system displays read/write, sector, data, or seek error messages when attempting to access files on the hard drive.

Possible Cause

- The format may be fading.
- The hard drive may be developing media errors.
- The file allocation table may be corrupted.

Solution

- Using a file-by-file backup method, back up as much data as you can, then reformat the drive. Afterwards, if the format was successful, use a disk diagnostic software application to test the media of the drive (make sure the application locks out any errors it finds to make them inaccessible from DOS). Finally, restore your files from the backup tape or diskettes.

System Problems

Problem

After installing a new peripheral card, an unrelated part of the system suddenly stops working.

Possible Cause

- The new card may be attempting to use some of the same system resources, such as address space, I/O ports, or interrupt lines, and may be conflicting with the failing part of the system.

Solution

- Most peripheral cards have jumpers or switches that configure the card to use different I/O ports, interrupt lines, or address regions. Refer to the documentation that was provided with the new card and try to change the settings to eliminate the conflict.

Problem

A large number of bad sectors are encountered when attempting to format diskettes.

Possible Cause

- Typically, Micron computers are provided with 1.2MB 5.25" and 1.44MB 3.5" floppy drives. An attempt may have been made to format a low-density disk in one of the Micron high-density floppy drives.

Solution

- Refer to the DOS manual for more information about how to format low-density diskettes in high-density floppy drives.

Chapter 5

Mouse User's Guide

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Document No. HA 51523-0593

Getting Started

This chapter contains information to help you get started with your mouse.

Checklist of Essentials

You need the following software and hardware to use your mouse:

MS-DOS® version 2.0 or higher

A personal computer and display

The Microsoft Mouse is designed for use with personal computers that are 100-percent compatible with MS-DOS.

Make sure the following items are included in your Microsoft Mouse package:

A Mouse

The Setup disk

This *Mouse User's Guide*

The README.TXT File

The Setup disk with your mouse includes a file named README.TXT. This file contains information that became available after this book was printed. After you install the mouse software, you can access the README.TXT file from the mouse program group in Microsoft® Windows™. You can also read the file before you run Setup.

To read the README.TXT file from MS-DOS

1. Insert the Setup disk into the disk drive.
2. At the command prompt, specify the disk drive and type **readme**.

   For example, type **a:readme** if you're using drive A.

To print README.TXT from MS-DOS

1. Make sure your printer is ready to receive information from the computer.
2. At the command prompt, type

   copy a:readme.txt lpt*n* (or **com*n***, if you have a serial printer)

   where ***n*** is 1 or 2, depending on your printer.

Radio Interference Information

This device complies with Part 15 of the U.S. Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For more information, see "United States Radio and TV Interference Regulations" at the end of this section.

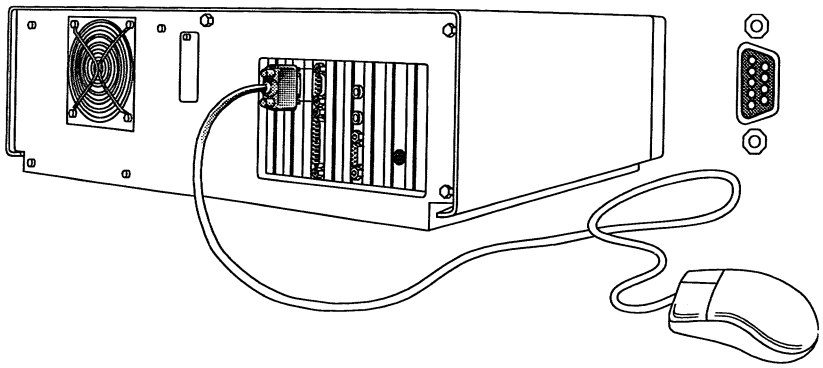
Installing the Hardware

This chapter explains how to connect the mouse hardware. There are two versions of the mouse to accommodate different systems: serial and mouse port (PS/2).

Installing a Serial Mouse

If you have a 9-pin serial mouse (see connector below), connect the mouse to your computer by following the instructions below. Then skip the rest of this chapter and turn to "Installing the Software."

NOTE: Always turn the computer OFF before connecting or disconnecting your mouse.



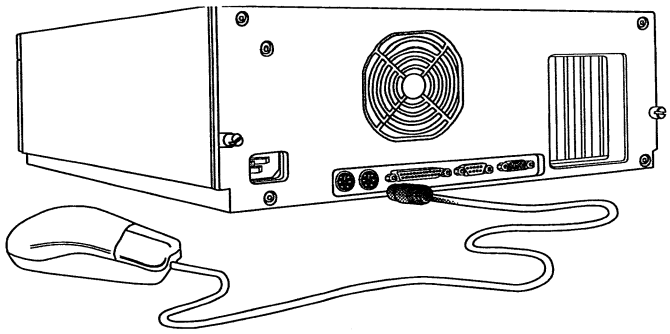
To connect the 9-pin serial mouse to your computer:

1. Turn your computer off.
2. Locate an available 9-pin serial port on the back of your computer (this port may be oriented either vertically or horizontally).
3. Insert the serial connector into the serial port and tighten the screws.
4. Start your computer.

Installing a Mouse with Mouse Port (PS/2) Connector

If you have a mouse with a round mouse port connector (also known as a PS/2 connector), connect the mouse to your computer by following the instructions below. Then skip the rest of this chapter and turn to "Installing the Software."

NOTE: Always turn the computer OFF before connecting or disconnecting your mouse.



To connect the mouse port to your computer:

1. Turn the computer off.
2. Locate an available 6-pin round port on your computer.
3. Insert the mouse connector into the round mouse port.

NOTE: Some round ports may look similar to the mouse port, but they may be incompatible with the connector on the mouse-port cable. If you cannot connect the mouse easily, do not force it. Locate the compatible round port or contact your computer dealer or hardware manufacturer for assistance.

4. Start your computer.

Installing the Software

This chapter explains how to set up the mouse software. The Setup disk that came with your mouse includes the software you need to set up and use the mouse.

Running the Setup Program

You can run the Setup program from either MS-DOS or Microsoft Windows (version 3.0 or higher). Once you start Setup, follow the instructions provided on the screen. Help is available in MS-DOS through windows at the bottom of the screen and in Microsoft Windows by pressing F1 or clicking the Help button.

If you would like the easiest, most convenient form of Setup, or if you are not comfortable with choosing which files to load, accept all the defaults and Setup will install the mouse software for MS-DOS and Microsoft Windows for you. If you have limited disk space, you can use the Custom option to have Setup install only specific files.

NOTE: Most of the files on the Setup disk are in a compressed format. The Setup program decompresses these files when it copies them to your disk. Compressed files are denoted with a dollar sign ($) in the filename extension. For example, MOUSE.EX$ is the compressed form of MOUSE.EXE.

To Run Setup

1. Install the mouse hardware before you run Setup. See "Installing the Hardware" earlier in this section.
2. Start your computer.
3. Insert the Setup disk into the disk drive.
4. If you are running Setup from MS-DOS, skip to step 5.

   If you have Microsoft Windows 3.0 or higher, start Windows. From the File menu in Program Manager, choose Run.
5. Specify the disk drive, and type **setup**. For example, type **a:setup** if you are using drive A.

In Windows 3.1 or higher, Setup integrates Mouse Manager into the Windows Control Panel. Setup also installs a mouse program group in Windows Program Manager. This group includes icons for a README file and Mouse Manager. You can move or copy the mouse program items into other program groups in Program Manager. For more information on program items and groups, see the *Microsoft Windows User's Guide.*

Files on the Setup Disk

If you choose a complete set up of the mouse software for Microsoft Windows and MS-DOS, Setup copies the following files to your system:

Filename	Description
ERGODEMO.DLL	Meet the Mouse demonstration
MOUSE.DRV	Mouse driver for Windows
MOUSE.EXE	Mouse driver for MS-DOS
MOUSE.INI	Mouse initialization file
MOUSEMGR.DLL	Library for Mouse Manager
MOUSEMGR.EXE	Mouse Manager for Windows and MS-DOS
MOUSEMGR.HLP	Help for Mouse Manager
POINTER.DLL	Mouse Manager features
POINTER.EXE	Executable file for POINTER.DLL
README.EXE	README viewer
README.TXT	Notes for this software version

The Mouse Drivers

The file that lets your mouse work with your computer is the mouse driver. The mouse driver for MS-DOS is called MOUSE.EXE. The mouse driver for Microsoft Windows is called MOUSE.DRV.

README file

The README file (README.TXT) contains information not available when this section was printed.

Meet the Mouse

Meet The Mouse for Microsoft Windows (ERGODEMO.DLL) is a short, animated demonstration that details the ergonomic and software features of the mouse. After Setup copies the files to your disk, you can run Meet The Mouse. Click the Meet The Mouse button from the final screen of Setup to start the demonstration. You can also run Meet The Mouse any time from Mouse Manager by clicking the Meet The Mouse button. To save disk space, you can delete this demonstration any time by deleting the ERGODEMO.DLL file from the directory that contains your mouse software.

Mouse Manager

Mouse Manager in MS-DOS and Microsoft Windows (MOUSEMGR.EXE) lets you customize the way the pointer responds as you move your mouse. It offers you a variety of features that turn your mouse into a powerful computing tool.

After Setup from MS-DOS copies the files to your disk, it asks if you would like to run Mouse Manager.

When installation from Windows is complete, Setup restarts Windows and automatically opens Mouse Manager to the Orientation screen so that you can begin customizing your software immediately. It is important to set Orientation immediately since you can hold the mouse in a variety of positions and you need to tell the software which way is up for your mouse. Then reset Orientation periodically because the way you hold the mouse may change over time.

After you complete the Setup program, you are ready to use the mouse with your applications. See "Using the Mouse" for details on using the mouse and "Using Mouse Manager" for information on Mouse Manager.

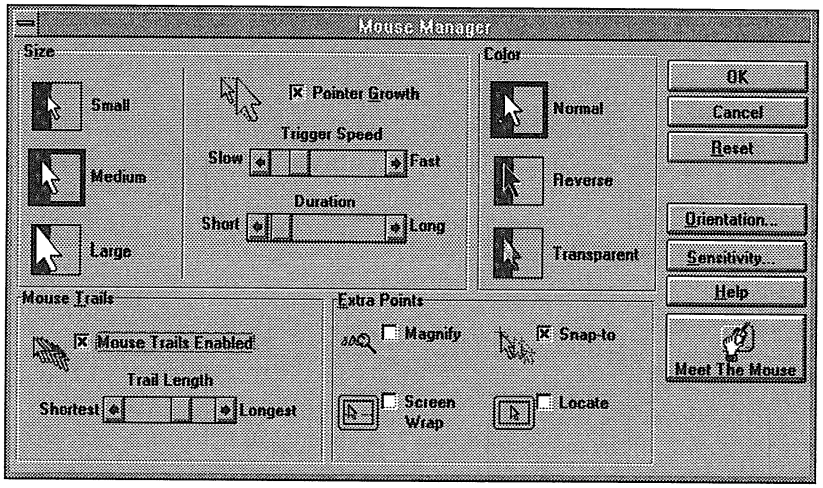
If you encounter problems while running Setup, see "Troubleshooting the Mouse" later in this section.

Using Mouse Manager

This chapter describes the various Mouse Manager features. Mouse Manager helps turn your pointing device into a powerful computing tool. Both the Microsoft Windows and MS-DOS versions of Mouse Manager let you adjust several mouse options.

NOTE: If you do not have Mouse Manager (shown in this chapter), your computer manufacturer did not install the mouse software that comes with this mouse.

Running Mouse Manager for Windows



When Setup installs for Windows, Mouse Manager replaces the standard mouse options in the Control Panel that comes with Windows 3.1. For all versions of Windows 3.X, a new program group is created that includes Mouse Manager. Mouse Manager includes extensive Help, accessible by pressing F1 or by choosing the Help button.

To Run Mouse Manager for Microsoft Windows

1. In Windows 3.0, open the Mouse group.

   In Windows 3.1, open the Windows Control Panel or Mouse Group.

2. Double-click the mouse icon.

Each feature in Mouse Manager is described on the following pages.

Size

Use this feature to adjust the pointer size. You can choose a small, medium or large pointer. Choosing a larger size may dramatically improve pointer visibility on liquid crystal display (LCD) screens. Select the desired pointer size on the screen.

Pointer Growth

Use this feature to enable Pointer Growth if you choose a medium or large pointer. This feature makes the pointer grow to the selected size depending on the Trigger Speed; then the pointer shrinks back to its smaller size depending on the Duration. Trigger Speed is a speed limit, and Duration is a time period. When you move the pointer faster than the Trigger Speed, the pointer switches to the larger size. After the mouse stops moving, the pointer waits the Duration, then switches to the smaller size. Duration can vary from zero to 10 seconds.

NOTE: Application-specific pointers in Windows grow but do not shrink back to the smaller size.

Color

Use this feature to choose the color of the pointer. Choosing a different color may dramatically improve pointer visibility, especially on LCD screens. You can choose a normal, reverse or transparent pointer. Select the desired pointer color on the screen.

Mouse Trails

Use this feature to give your pointer a comet-like effect that helps improve pointer visibility on your screen. When you turn on the Mouse Trails Enabled box, you can also adjust the length of the mouse trail.

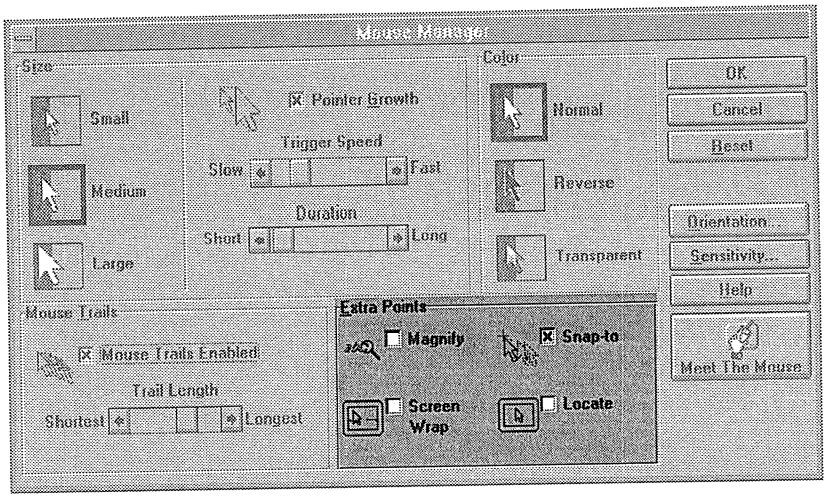
NOTE: This feature is supported for Microsoft video drivers that come with Windows 3.1 (EGA, VGA, and Super VGA) and drivers that are 100-percent compatible with Windows 3.1 video drivers.

Meet The Mouse

Run Meet The Mouse to see a short, animated demonstration that details the ergonomic and software features of the mouse. You can delete this demonstration to save disk space by deleting the ERGODEMO.DLL file from the directory that contains your mouse software.

NOTE: This feature is supported for VGA or higher-resolution displays.

Mouse Manager Extra Points

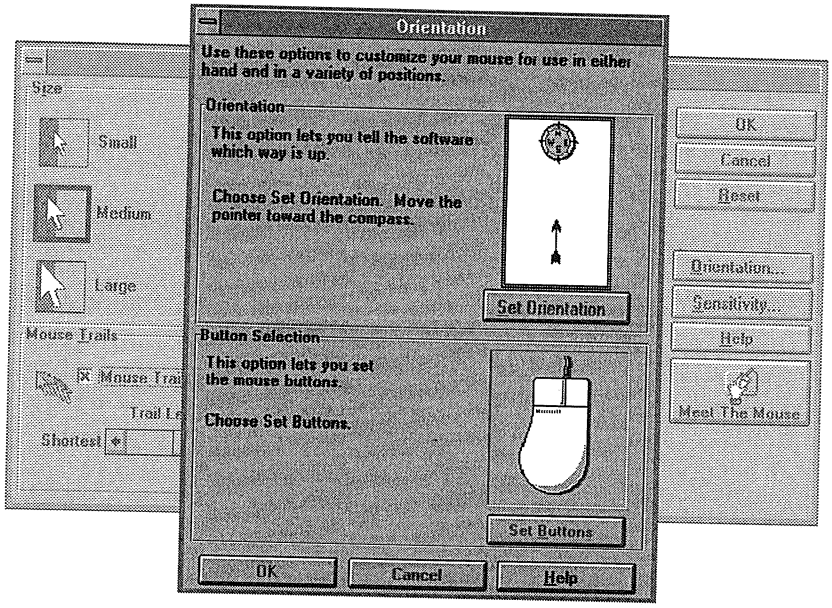


The Extra Points features of Mouse Manager are powerful tools that let you manipulate the pointer on the screen. To enable a feature in Extra Points, turn on the box next to the feature.

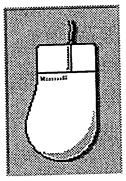
Two of the features, Magnify and Locate, need a combination of a keyboard key and a mouse button for operation. When you enable these features in Mouse Manager, a list box appears and gives you a list of mouse and key combinations. Select the combination of your choice. When you want to activate Magnify or Locate, press the key and click the mouse button you selected. If you do not remember, you will find your choice listed below the feature in Mouse Manager.

NOTE: Press the key first and hold it down while clicking the mouse button to activate Magnify and Locate.

Orientation



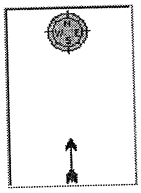
Click the Orientation button on the first Mouse Manager window to open the Orientation screen. The Orientation screen includes the Button and Orientation Selection features.



Button Selection

Use this feature to specify the buttons you want to use as your primary and secondary buttons. The primary mouse button is most commonly the left button on the mouse, but you can customize your mouse buttons so that the primary button is the right button. This is so that you can use the mouse with ease in either hand. To run Button Selection, click Set Buttons and follow the instructions on the screen.

NOTE: Primary and secondary buttons are referred to as left and right buttons in some documentation.

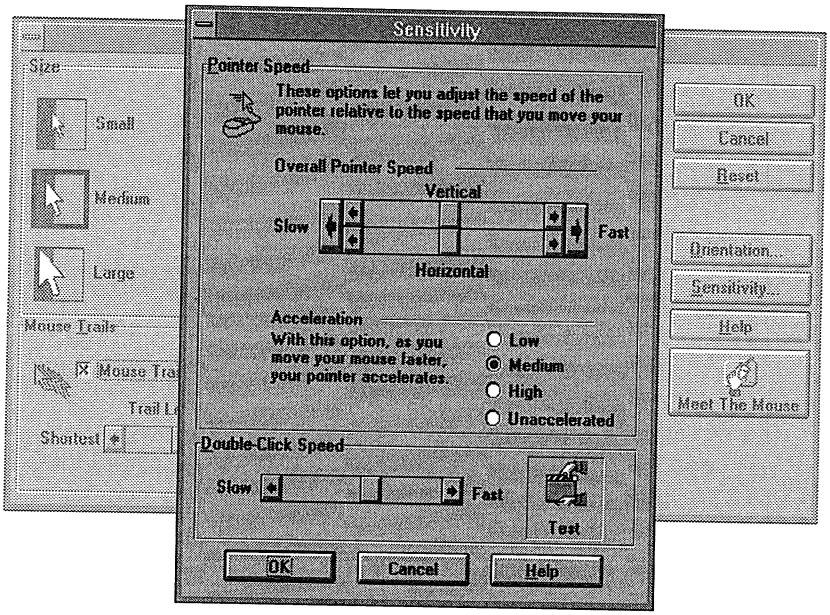


Orientation

Use this feature to set the direction for the pointer to travel on the screen when you move the mouse. Individual mouse users hold and move the mouse differently, and Orientation lets each user customize the software to arrive at the most comfortable alignment. This is also helpful if you vary your hand positions. To run Orientation, click the Set Orientation button and follow the instructions on the screen.

Remember, you are setting the direction in which the ball of your mouse is traveling. You can align your mouse in a variety of positions, then use Orientation to tell the software which way is up for the ball of your mouse. This feature lets you occasionally change the way you hold the mouse-you will find this to be a comfortable work habit.

Sensitivity



Click the Sensitivity button on the first Mouse Manager window to open the Sensitivity screen. Sensitivity includes Overall Pointer Speed, Acceleration and Double-Click Speed.

Pointer Speed

Use these features to control how fast or slowly the pointer moves as you move your mouse. Depending on the applications you use, there are times when you may want fast pointer movement and other times when you may want very slow, fine pointer movement.

Overall Pointer Speed is the ratio of actual mouse movement to pointer movement. You can adjust Overall Pointer Speed using slider bars to set axes independently. That is, the sensitivity for the horizontal (left/right) axis can be different from the sensitivity for the vertical (up/down) axis. You can also change the sensitivity settings for both axes simultaneously by clicking the large arrows on either side.

Acceleration varies sensitivity with changes in the speed of the mouse. For example, when you use an accelerated mouse profile (Low, Medium, or High), and you move the mouse quickly-even over a very small distance-the pointer moves farther across the screen than when you move the mouse slowly. A small, fast mouse movement can move the pointer completely across your screen, while a large, slow movement may move the pointer only an inch or two. Try each of the four selections to see which works best with your application.

Double-Click Speed

Use this feature to set the speed with which the software recognizes a double-click. Double-clicking means pointing to an object on the screen and quickly clicking a mouse button twice.

Double-click the Test box to see how fast your double-click setting is recognized. The clapper board opens or shuts when it recognizes a double-click.

Command Buttons

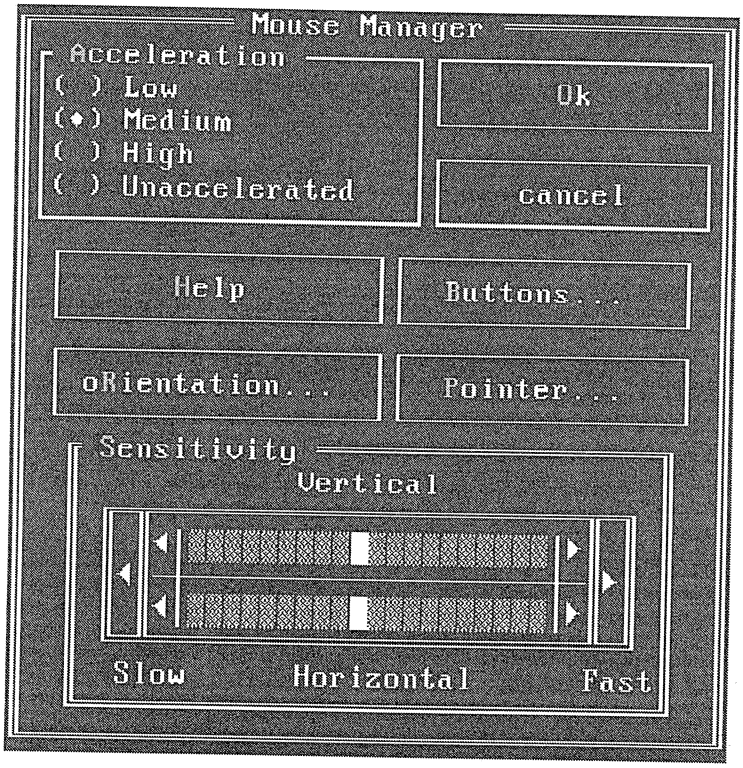
OK saves the settings you have made in the current session of Mouse Manager and closes the active screen. Mouse Manager writes the configuration to the MOUSE.INI file and these settings are saved until the next time you change them.

Cancel undoes any of the changes you have made to the pointer during the current session in Mouse Manager, then closes the screen in which you are currently working.

Reset returns the pointer to its default Microsoft Windows pointer settings. This button only applies to the first Mouse Manager window.

Help provides extensive help on the mouse and its software. See "Viewing Technical Notes" in Help for additional information about the mouse.

Running Mouse Manager for MS-DOS



The MS-DOS version of Mouse Manager lets you adjust several mouse options for MS-DOS based applications. Use the following procedure to run Mouse Manager for MS-DOS.

If the mouse is not in your AUTOEXEC.BAT path, first change to the directory that contains Mouse Manager before you run the program.

To Run Mouse Manager for MS-DOS

1. Make sure your mouse is connected and that the mouse driver is loaded.
2. At the command prompt, type:

   mousemgr

   Mouse Manager is displayed. An error message is displayed if the MS-DOS mouse driver is not properly loaded.

You can set the following features for applications available in MS-DOS:

Acceleration

When you select a different acceleration profile, you change the ratio between the distance the pointer moves on your screen and the speed of mouse movement. These profiles are listed by name in Mouse Manager. Acceleration profiles cause the pointer to move greater or lesser distances across the screen depending upon how quickly you move the mouse.

Help

Help is available for each option in Mouse Manager.

Buttons

Mouse Manager lets you choose the buttons that you want to use for primary and secondary buttons. Some documentation refers to these buttons as right and left buttons.

Orientation

Orientation sets the direction for the pointer to travel on the screen when you move the mouse. Individual mouse users hold and move the mouse differently, and Orientation lets each user customize the software to arrive at the most comfortable alignment.

Pointer

The Pointer options let you adjust the size and color of the pointer. If you increase the size of the pointer, you can also adjust the threshold and delay of pointer growth. (These features are called Trigger Speed and Duration in the Windows version of Mouse Manager.) The Growth feature makes the pointer grow to a larger size depending on the threshold setting (a speed limit); then the pointer shrinks back to its smaller size depending on the delay setting (a time period).

Sensitivity

Mouse sensitivity is the ratio of actual mouse movement to pointer movement. The sensitivity for the horizontal (left/right) axis can be different from the sensitivity for the vertical (up/down) axis. You can also change the sensitivity settings for both axes simultaneously by clicking the large arrows at either end.

Troubleshooting the Mouse

This chapter provides tips and strategies for problems you may encounter with the mouse either during installation or normal use. Details on cleaning your mouse are also included here.

Troubleshooting Table

Use the following guide if you encounter problems with your mouse.

Problem

General failures during Setup

Action

Setup may not work properly if you have used the MS-DOS append command. If this command is in effect, remove it before running Setup by typing append; at the MS-DOS command prompt (include the semicolon). If Setup fails from Windows, exit Windows and try running Setup in MS-DOS. Conversely, if Setup fails from MS-DOS, try running it in Windows.

Problem

The message "Microsoft Mouse not found. Try another 9- or 25- pin serial port and/or check for interrupt conflicts with other peripherals" appears after running Setup.

Action

Try typing mouse/F at the prompt in the directory that contains your mouse software in MS-DOS for a list of all the mouse devices.

If your mouse is attached to a serial port, make sure that your port is configured correctly. Your port should conform to IBM standard RS-232C. (Serial port COM1 should use interrupt IRQ4, and COM2 should use IRQ3. Those interrupts should not be shared by other devices.)

If you have an internal modem or a netcard on IRQ3 or IRQ4, you may have a conflict. Switch your mouse to a different serial port or reconfigure your serial port so that it does not conflict with the mouse port (see the user's guide for your computer).

If, after checking the mouse installation and restarting your computer, you still receive the error message, you may want to try installing the mouse on another system to determine whether the problem is with the mouse or the system. If you still have problems, call Micron Computer, Inc.

Problem

Erratic mouse movement.

Action

Clean the mouse. See "Cleaning Your Mouse" in this chapter.

If the mouse movement is still erratic after you have cleaned it, remove the ball and move the rollers with your finger. Watch to see if the pointer is erratic in the horizontal or vertical direction and note that. Then try this on a different machine. If you obtain the same results, the problem is the mouse. Call Micron Computer, Inc.

If the movement is erratic in both the horizontal and vertical directions, try a different mouse on the same machine to determine if the problem is software or hardware related. Then call Micron Computer, Inc.

If you are using a serial to PS/2 adapter, remove the adapter and try using your mouse on the serial port.

Problem

The message "Microsoft Mouse not found. Try another 9- or 25- pin serial port and/or check for interrupt conflicts with other peripherals" appears after you have been using your mouse for some time.

Action

If you have recently installed another device into your computer, remove it. If the problem goes away, you may have an interrupt conflict. If your mouse is connected to the COM1 interface, use COM2 or COM4 for the other device. If your mouse is connected to COM2, use COM1 or COM3 for the other device.

Try typing mouse/F at the prompt in the directory that contains your mouse software in MS-DOS for a list of all the mouse devices.

Problem

General mouse problems

Action

If you change the configuration of your system after you have installed the mouse software, you may need to run Setup again to set up the mouse software for the new configuration.

Try typing mouse/? at the prompt in the directory that contains your mouse software for help about the MS-DOS mouse driver.

Cleaning Your Mouse

If you notice that the pointer does not move smoothly or that the mouse does not move freely, you should clean your mouse.

To clean your mouse:

1. Turn your computer off.
2. Turn your mouse upside down and remove the mouse-ball cover.
3. Turn your mouse right-side up. The ball should drop into your hand. If it doesn't, gently shake the mouse until the ball drops out of its socket.
4. Once the ball is free, use adhesive tape to pick up any dust or lint on the surface of the ball. Wipe away dirt or lint inside the mouse socket. You can also blow gently to remove dirt and lint.

   If lint is trapped inside the socket or on the rollers, use a cotton swab dipped in isopropyl alcohol to loosen it. Allow surfaces to dry completely after cleaning.
5. Return the ball to its socket and replace the mouse-ball cover.

Mouse Settings

The following table lists the settings stored in the MOUSE.INI file, together with default and allowable values. The syntax for each setting is the name of the setting, followed by an equal sign (=), and a value for that setting. See Help in Mouse Manager for Windows for more information about MOUSE.INI settings ("The MOUSE.INI File").

The exact setting names are listed in your MOUSE.INI file.

Setting	Default Value	Allowable Values	Switches
Mouse Type	none	Serial 1,2	/Cn
		PS/2	/Z
		InPort 1,2	/In
		Bus	/B
Interrupt Rate	1	0,1, 2, 3, 4	/Rn
Sensitivity			
Horizontal only	50	5-100	/Hn
Vertical only	50	5-100	/Vn
Horizontal and vertical	50	5-100	/Sn
Active Acceleration Profile	2	1, 2, 3, 4	/Pn
Cursor Display			
Cursor Display Delay	0	0-10	/Nn
Force Default Cursor	off	on/off	/M
Hardware Cursor Support	off	on/off	/Y
Rotation Angle	0	0-359	/Or
Button Selection			
Primary	1	1,3	/KPnSm
Secondary	3	1,3	/KPnSm
Load Mouse in Low Memory	off	on/off	/E
Find all Mouse Devices	off	on/off	/F
Help for Mouse Switches	off	on/off	/?

Product Support

If you have a problem with your mouse, first check "Installing the Hardware" and "Installing the Software" in this section to make sure that the mouse is installed correctly.

If you cannot find the answer in this chapter, contact Micron Computer, Inc. When you call, you should be at your computer with the following information at hand:

- The FCC ID number (found on the underside of the mouse)
- The *Mouse User's Guide*
- The make and model of your computer
- An MS-DOS system disk for restarting your computer
- A list of the peripheral devices attached to your computer
- The exact wording of any messages that appeared on your screen
- What happened and what you were doing when the problem occurred
- How you tried to solve the problem

United States Radio and TV Interference Regulations

The Microsoft hardware device(s) described in this manual can radiate radio frequency (RF) energy. If not installed and used in strict accordance with the instructions given in this manual, the device may cause harmful interference with radio and TV reception. Any cable that is connected to the Microsoft Mouse connector must be a shielded cable that is properly grounded.

Your Microsoft hardware device has been tested, and it complies with the limits for a Class B computing device in accordance with the specifications in Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful RF interference in a residential installation. There is, however, no guarantee that RF interference will not occur in a particular installation.

To determine if your hardware device is causing interference, disconnect the device from your computer. If the interference stops, it was probably caused by the device. If the interference continues after you disconnect the hardware device, turn the computer off and then on again. If the interference stopped when the computer was off, check to see if one of the input/output (I/O) devices or one of the computer's internal accessory boards is causing the problem. Disconnect the I/O devices one at a time and see if the interference stops.

If your computer does cause interference, try the following measures to correct it:

Relocate the radio or TV antenna until the interference stops.

Move the computer farther away from the radio or TV, or move it to one side or the other of the radio or TV.

Plug the computer into a different power outlet so that the computer and radio or TV are on different circuits controlled by different circuit breakers or fuses.

If necessary, ask your computer dealer or an experienced radio-TV technician for more suggestions. You may find helpful information in the booklet *How to Identify and Resolve Radio-TV Interference Problems*, published by the FCC. The booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. The stock number is 004-000-00345-4.

NOTE: Any changes or modifications not expressly approved by Microsoft could void the user's authority to operate this device.

Canadian Radio Interference Regulations

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil n'émet aucune interférence radioélectrique supérieure aux limites imposées aux appareils numériques de classe B et décrites dans le règlement du Ministère des Communications du Canada concernant le brouillage radioélectrique.

Introduction

If you are experiencing problems with your Micron system and Chapter 4, "Common Problems" does not provide the information needed to correct your problem, feel free to contact Micron Technical Support at 1-800-877-8856. But before you do, take a few minutes to read this section for information about the equipment and information you might need to help the technical support representative diagnose the problem.

Before You Call

Before contacting Micron Technical Support, please follow the next few steps. They are designed to prepare you for any of the questions the technical support representative might ask or any procedures he/she may need you to do. This will help solve your problem in the fastest possible time.

1) Make sure your system is plugged into a grounded power outlet.

2) Locate the failing system as near a telephone as possible, preferably close enough so that you can simultaneously talk with the technical support representative and you work on the system.

3) Have a medium to small sized Phillips-head screwdriver available. It's possible you may need to open your system to correct the problem.

4) Write down all error information you can remember, including error messages, software used (with version numbers), and so on.

Hopefully Micron Technical Support will be able to solve your problem over the telephone. However in some extreme cases your system may need to be returned to Micron Computer, Inc. for repair. The next section describes what to do if this is the case.

Returning Equipment to Micron

If it is determined that your system needs to be returned to Micron for repair or replacement, please observe the rules listed on the next page. Failure to follow any of these rules may result in long delays in repair or the simple return of the system without repair.

1) Contact Micron Technical Support at 1-800-877-8856 to obtain an RMA (Return Material Authorization) number and to obtain shipping instructions before returning any portion of your system.

2) Make sure all printed-circuit boards or static-sensitive peripherals are completely enclosed in anti-static bags or foam.

3) Print the RMA number in large, black ink on the outside of the shipping boxes.

4) Enclose a note describing the problem as well as the name of the technical support representative who authorized the return.

Micron also highly recommends that you follow these additional steps for your protection:

1) Make a complete backup of your hard drive(s) before returning the system.

2) Use the original packing material that came with your system.

Please ship to the following address:

Micron Computer, Inc.
Attn: RMA #xxxx ←——
900 East Karcher Rd.
Nampa, ID 83687

Please Note:
It is essential to obtain this RMA number from Technical Support or Customer Service BEFORE returning an Micron material.

Post and Boot Messages

Power On Self Test (POST) displays two kinds of messages: Error messages and Informational messages. The following tables list these messages, their causes, and their solutions. If you continue to experience problems and this section fails to alleviate the problem, refer to Chapter 4, or contact Micron technical support (see Appendix A: Contacting Technical Support).

Message	Possible Cause	Solution
Diskette Configuration Error	The configuration is not specified.	Change the configuration.
Diskette Drive Reset Failed	The diskette adapter has failed.	Check the diskette adapter.
Diskette Drive 1 Seek Failure	The B drive failed or is missing.	Check the B drive.
Diskette Drive 0 Seek Failure	The A drive failed or is missing.	Check the A drive.
Diskette Read Failure; Strike F1 To Retry Boot	The diskette is not formatted or is defective.	Replace the diskette with a formatted diskette and retry.
Display Adapter Failed; Use Alternate	The color/monochrome switch is not set correctly, or the primary video adapter failed.	Change the switch to the correct setting, or check the primary video adapter.
Errors Found; Disk X failed Initialization	The POST reports hard disk configuration information is incorrect.	Rerun SETUP and enter the correct hard disk information.
Errors found; Incorrect Configuration Information; Memory Size Miscompare	The POST reports the size of base, or the expansion memory, does not agree with configuration information.	Enter correct memory size and rerun Setup procedure.

Table B-1. POST Messages

Message	Possible Cause	Solution
Gate A20 Failure	Protected mode can not be enabled.	Check system board.
Hard Disk Configuration Error	The specified configuration is not supported.	Correct the hard disk configuration.
Hard Disk Controller Error	The controller card has failed.	Replace controller card.
Hard Read Failure Strike F1 To Boot	The hard disk failed.	Press F1 to reboot. Replace hard disk if that does not work.
FDD Controller Failure	Diskette controller failed.	Replace controller card.
FDD A Is Not Installed	Can not find diskette controller for drive A.	Install or replace controller card.
FDD B Is Not Installed	Can not find diskette controller for drive B.	Install or replace controller card.

Table B-2. POST Messages

BIOS Hard Disk Types

Type	Cylinders	Heads	Write-Precomp	Landing Zone	Capacity (Mbytes)
1	306	4	128	305	10
2	615	4	300	615	20
3	615	6	300	615	30
4	940	8	512	940	62
5	940	6	512	940	46
6	615	4	-1	615	20
7	462	8	256	511	30
8	733	5	-1	733	30
9	900	15	-1	901	112
10	820	3	-1	820	20
11	855	5	-1	855	35
12	855	7	-1	855	49
13	306	8	128	319	20
14	733	7	-1	733	42
15	000	0	000	000	00
16	612	4	0000	663	20
17	977	5	300	977	40
18	977	7	-1	977	56
19	1024	7	512	1023	59
20	733	5	300	732	30
21	733	7	300	732	42
22	733	5	300	733	30
23	306	4	0000	336	10
24	unused	0	0000	0	0
25	615	4	0	615	20
26	1024	4	-1	1023	34
27	1024	5	-1	1023	42
28	1024	8	-1	1023	68
29	512	8	256	512	34
30	615	2	615	615	10
31	989	5	0	989	41
32	1024	15	-1	1024	127
33	unused	0	0	0	0

Table C-1. Hard Drive Type Parameters

Type	Cylinders	Heads	Write-Precomp	Landing Zone	Capacity (Mbytes)
34	unused	0	0	0	0
35	1024	9	1024	1024	76
36	1024	5	512	1024	42
37	830	10	-1	830	68
38	823	10	256	824	68
39	615	4	128	664	20
40	615	8	128	664	40
41	917	15	-1	918	114
42	1023	15	-1	1023	127
43	823	10	512	823	68
44	820	6	-1	820	40
45	1024	8	-1	1024	68
46	925	9	-1	925	69
47	699	7	256	700	40
48		User Configurable			
49		User Configurable			

Table C-1a. Hard Drive Type Parameters

The Micron Supplied Hard Drives

Most Micron computers come with preconfigured Maxtor, Quantum, or Connor hard drives installed. Micron uses several different models, depending on the customer's order. The IDE drives all have integrated IDE controllers with a 1:1 interleave rating. All drives have been low-level formatted and tested at the factory. ***Never low-level format any of these drives as this may cause the drive to fail.*** The drive statistics are shown on the next page. Make a note of them in case your internal battery fails or the CMOS loses its information.

Model	Cylinders	Heads	WPcom	Lzone	Sectors/Tracks	Setup Size
Maxtor:						
7080A	981	10	65535	0	17	81MB
7120A	936	16	65535	0	17	124MB
or	1024	16	65535	0	17	119MB
7213A	683	16	65535	0	38	203MB
LXT213A	683	16	65535	0	38	203MB
7245A	967	16	65535	0	31	234MB
LXT340A	654	16	65535	0	63	322MB
7345A	790	15	65535	0	57	324Mb
LXT535	1036	16	65535	0	63	522MB
MXT540AL	1024	16	65535	0	63	540MB

Table C-1b. Hard Drive Type Parameters

Model	Cylinders	Heads	WPcom	Lzone	Sectors/Tracks	Setup Size
Quantum:						
52AT LPS	751	8	65535	0	17	50MB
80AT	1024	9	65535	0	17	77MB
120AT	814	9	65535	0	32	114MB
210AT	873	13	65535	0	36	199M
245AT	723	13	65535	0	51	234MB
Connor:						
CP30084E	903	4	65535	0	46	85MB
CP30104	776	8	65535	0	33	120MB
CP30174E	903	8	65535	0	46	170MB
CP3204	683	16	65535	0	38	200MB
CP30254	895	10	65535	0	55	252MB
CP30344	665	16	65535	0	63	343MB
CP30544	1023	16	65535	0	63	545MB

Table C-2c. Hard Drive Type Parameters

How the Setup Size is Calculated

The CMOS setup program reports a hard drive size that is smaller than the hard drive actually installed. This is not a mistake. The hard drive size is determined in the following fashion:

$$\frac{\text{Cylinders x Heads x Sectors x 512 (bytes per sector)}}{\text{1,048,576 (actual size of a MB in bytes)}}$$

For example, we will calculate the size of the Maxtor 7245A:

$$967 \times 16 \times 31 \times 512 = 245{,}571{,}584 \text{ bytes}$$

$$\frac{245{,}571{,}584}{1{,}048{,}576} = 234.195 = 234\text{MB}$$

By this example, although the Maxtor 7245A is shown as a 234MB drive, it actually possesses over 245.4 million bytes of storage space.

Glossary

Application: A software program that operates under an operating system to perform a specific task.

BIOS: Basic Input/Output System. Programs that are permanently stored in the system board's ROM chips providing functions such as the power-on self test. Also see ROM.

Boot: To start the computer system and load the operating system.

Bus: The set of address or data lines used to transfer information between different components within a computer (such as memory, the microprocessor, and the expansion slots).

Cache: Provides fast, local storage for frequently accessed instructions and data to provide the processor with the fastest stream of information possible, while keeping main memory current.

Clock: A circuit that sends a consistent, periodic signal that is used to synchronize the computer and to step information through the system.

Closed: A circuit that is complete. Usually accomplished by placing a jumper over two pins on the system board or a peripheral card. Also see "Open" and "Jumper."

CMOS: Complementary Metal Oxide Semiconductor. A logic circuit family that uses very little power. Sometimes used to store information by applying constant, uninterrupted power through the use of an external battery.

Coprocessor: A microprocessor device that performs specialized computations (such as floating-point arithmetic) much more efficiently than the microprocessor alone.

CPU: Central Processing Unit. The integrated circuit chip that performs the actual computing functions of the computer. Other chips perform support functions like storing data and controlling peripherals. Also see microprocessor.

Disk: See "Floppy Disk" and "Hard Disk."

DMA: Direct Memory Access. A method for transferring data directly to and from system memory, bypassing the microprocessor.

DOS: See "Operating System."

DRAM: Dynamic Random Access Memory: Memory that requires a periodic refresh cycle to keep the stored information from being lost. Loss of power causes loss of data in this memory.

EISA: Extended Industry Standard Architecture.

Expansion Slot: A connector on the motherboard for holding a peripheral card.

Floppy Disk: A 3.5 inch or 5.25 inch removable storage medium used for storing programs and files externally from the computer system.

Format: A process which prepares a disk to hold data. For hard disks, there are two formatting process: low-level and high-level.

Hard Disk: An internal or external, high capacity, high speed storage medium.

Hertz (Hz): A unit of frequency equal to one cycle per second.

I/O Port: A connector that allows external and some internal peripherals to communicate with the computer system (e.g., serial ports and parallel ports).

I/O: Input/Output. A generic term that refers to the devices and processes involved in the computer's reading and writing data.

Integrated Circuit: An electronic device that combines thousands of transistors on a small chip of silicon or other semiconductor. Such devices are the building blocks of computers.

Interface: The connection between the computer and its human operator, or between the computer and peripheral device.

ISA: Industry Standard Architecture. The standard bus interface that was implemented in the IBM AT.

Jumper: On a printed circuit board, a patch cable or wire used to establish a circuit.

Megahertz (MHz): A frequency of 1 million cycles per second.

Memory: Devices used to hold information and programs while they are being accessed by the microprocessor. See also RAM and ROM.

Microprocessor: An integrated circuit that contains the circuits the computer needs to calculate and to communicate with the other parts of the system. See also CPU.

Modem: A device designed to allow computers to communicate over standard phone lines.

Motherboard: See "System Board."

Non-Volatile Memory: Memory which is maintained even when power is not on.

On-Board Floppy: A floppy disk drive controller that in incorporated into the system board.

Open: A circuit that is not complete. Usually accomplished by removing a jumper from two pins on the system board or a peripheral card. Also see "Closed" and "Jumper."

Operating System: The software the provides a link between application programs and the computer hardware (e.g., disks, memory).

Page Mode: Special function in DRAM that saves up to about 30% in cycle time by not re-loading RAS bits.

Page: Sections of memory consisting of sets of consecutive bytes. Pages begin on 4-KB boundaries.

Peripheral Card: A printed circuit board that gives the computer added capability, such as more memory or control of a new device. A card plugs into one of the expansion slots located on the system board.

Peripheral: Any device that is connected to the computer system (e.g., printers, keyboard, plotters, etc.).

Pin: Any of the leads on a device, such as an integrated circuit, that plug into a socket and connect to a system.

Power-On Self Test (POST): Check-out procedures that the BIOS runs automatically when the system is turned on. These procedures verify that all computer hardware is functioning properly. If the test detects problems, the computer displays error codes before (or instead of) starting the operating system. The error codes can help a service person determine what is wrong with the computer.

Program: A set of instructions that a computer interprets to perform some task. Also see "Application" and "Operating System."

RAM: Random-Access Memory. The type of computer memory that can be used to store information while a program is running. RAM consists of a number of small integrated circuits that are plugged into the motherboard or an external memory card.

ROM: Read-Only Memory. The type of computer memory that is used to permanently store the information vital to computer operation, including some parts of the operating system. ROM is permanent and the contents will not be lost when the computer is turned off.

Setup Program: Used to inform the computer about installed peripheral, memory, configuration information, date and time, etc.

Shadow RAM: A method of copying BIOS routines from slower ROM chips to much faster RAM, increasing system performance.

SIMM: Single In-line Memory Module: A small circuit board containing memory components that plugs into special sockets located on the motherboard for upgrading the system memory. These modules generally need to be inserted in groups of two or four.

Software: A general term that describes a program or set of programs.

SRAM: Static Random Access Memory. Does not require periodic refreshing that dynamic memory requires.

System Board: The large printed-circuit board in a computer on which most electronic devices are mounted; the primary board in a computer. All other interfaces receive control signals or information from the motherboard. Also commonly referred to as the "mainboard" or "motherboard."

System Unit: The description for the computer case and all internal components (e.g., the system board, expansion cards, disk drives, power supply, etc.).

System: The assembly of basic components (e.g., power supply, motherboard, memory, video monitor, etc.) united by some form of communication to form an organized whole.

VESA: Video Electronics Standard Association. A group of standards developed for the purpose of defining video resolutions greater than VGA.

Wait State: A delay in the computer's information processing cycle caused by a difference in speed between a faster processor and slower memory. A 0 wait state means the processor does not have to "wait" for memory, and can access data as fast as needed.

Write Precompensation: In a hard disk, the varying of the timing of the read/write head current on the inner tracks of the disk to maintain a constant signal.

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Class B Digital Device: This device complies with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation, If this equipment does cause harmful interference to radio of television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

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